Happy New Year!

# CrossTalk

January 2026 67 Years Of Service To Amateur Radio & Our Community Issue 67 : 01

## 2026 Club Officers

| | |
|---|---|
| President : | Jonathan Pearce WB2MNF |
| Vice President : | Ronald Block NR2B |
| Treasurer : | John O'Connell K2QA |
| Recording Secretary : | John Zaruba Jr K2ZA |
| Corresponding Secretary : | Michael Resnick N2WOQ |

**Trustees - 4 Year Term**

| | |
|---|---|
| Sheldon Parker K2MEN | (2023-2026) |
| Len Rust W2LJR | (2024-2027) |
| Earl Moore KC2NCH | (2025-2028) |
| Greg Ciraula K3GS | (2026-2029) |

## Directors - 3 Year Term

| | | | |
|---|---|---|---|
| Al Arrison KB2AYU | (2024-2026) | Frank Romeo N3PUU | (2025-2027) |
| Bill Price NJ2S | (2024-2026) | Chris Prioli AD2CS | (2026-2028) |
| Jeffrey Garth WB2ZBN | (2025-2027) | James Wright N2GXJ | (2026-2028) |

**General Membership Meeting**
**Wednesday, January 07, 2026 @ 1900 Hours**
**In-Person & ZOOM : 982 4039 1944, 091084**

**License Testing Session**
**Thursday, January 08, 2026 @ 1900 Hours**
**W2MMD Clubhouse**

**Tech Saturday Forum**
**Saturday, January 10, 2026 @ 0900 Hours**
**W2MMD Clubhouse**

**Fox Hunt 35 - Winter Fox Hunt**
**Sunday, January 11, 2026**

**Meshtastic 915 MHz Setup Work Session**
**Saturday, January 17, 2026 @ 0900 Hours**
**W2MMD Clubhouse**

**Board of Directors Meeting**
**Wednesday, January 21, 2026 @ 1900 Hours**
**W2MMD Clubhouse**

**Winter Field Day**
**January 24 - 25, 2026**

**Dinner @ The W2MMD Clubhouse**
**Wednesday, January 28, 2026**

**Tuesday AfterNoon 2M Net @ 1200 Hours**
**Thursday Night 2M Net @ 2000 Hours**
**Monday & Thursday Night 40M Net @ 1900 Hours**
**7.170 MHz (+/- 5 or 10 kHz)**

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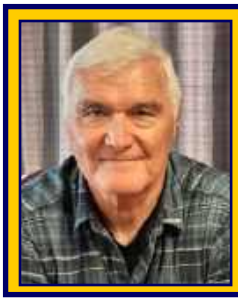


# President's Letter
# Jon Pearce WB2MNF

## January 2026 : *"We Choose To Go To The Moon"*

On a frigid Saturday night of the EME contest **Al KB2AYU**, **Frank N3PUU**, **John K2QA**, and I huddled in the VHF room of our Clubhouse, coaxing faint signals from the static. Weeks of preparation had led to this moment : Al and Frank had engineered a preamp and switching network to protect it from the transmitter's power, while a team had poured concrete around a pipe to anchor our dish. Al ran hardline under the Clubhouse and spliced rotator cables for easy assembly, and Frank 3D-printed an adapter to steady the dish in its mount. All this for a few precious hours of bouncing signals off the moon. As midnight approached and we strained for a handful of QSOs after hours of effort, someone finally asked, ***"Why are we doing this?"***

The answer echoed from over six decades ago, when **President John F. Kennedy** inspired a nation at Rice University: ***"We choose to go to the moon… not because it is easy, but because it is hard."*** Those words, which stirred a 12-year-old me before I even held a ham license, capture the heart of why we embrace the difficult - because the challenge itself is the spark that drives us. The engineers of 1962 who heard his speech and knew that they had no idea how to accomplish his goal nonetheless stepped in, invented countless new technologies and cemented their reputation as their own greatest generation, providing an inspiration for the techies of the future. And so we sat there on that cold Saturday night trying to bounce radio signals off the moon for the sheer satisfaction of having done it.

Kennedy's vision wasn't just about reaching the moon; it was about daring to tackle the difficult and finding meaning in the struggle and success. For ham radio operators, this translates to the thrill of decoding a barely audible CW signal, troubleshooting a stubborn rig, or mastering a new modulation scheme on an unfamiliar radio. Easy tasks fade quickly, but the hard ones - those that demand late nights, creative problem-solving, and relentless determination - leave us immensely satisfied. The journey, with its setbacks and breakthroughs, shapes us more than the destination. A ham's workbench is often a gallery of completed projects, each a testament to a challenge conquered, left behind as the next one beckons. The joy isn't just in saying "it works" but in knowing what it took to get there - the skills honed, the patience tested, and the ingenuity unleashed.

Our Club is a catalyst for these moon shot moments. Our Clubhouse HF station can power chases for DXCC or contest supremacy, while the VHF setup will provide the opportunity to explore new bands and modes. Our satellite station challenges operators to learn to relay signals through space, and our test bench and experimenters' area spark innovations with microcontrollers and cutting-edge tech. Every member is invited to seize a challenge, conquer it, and move on to the next. Like the Apollo engineers, we don't shy from the void; we dive in, knowing the hardest roads yield the deepest rewards.

So, what's your moon shot for 2026? Will you hunt Worked All States, log five new DX countries, or activate parks for POTA? Will you build a home station, decode a satellite's signal, or finally crack the code of DMR or mesh networks?

Tell us your challenge, and we'll help pull together the tools, knowledge, and teamwork to fuel your quest. Grab the mic, fire up the rig, and bounce your signal off the moon. The unknown is calling - answer it with a triumphant "it works".

# It Is Never To Early To Renew Your Membership Dues!

**You Can Pay Your Membership Dues Using Cash, Check, Credit Card :**

- **Pay your dues using our Pay Dues Here webpage**
- **Bring your money to a General Membership Meeting**
- **Bring your money to a Tech Saturday Forum**
- **Bring your money to any Saturday @ the W2MMD Clubhouse**
- **Send your check in to our PO Box 370**

**Gloucester County Amateur Radio Club**
**PO Box 370, Pitman, NJ 08071**

**The membership dues are :**

- **$30.00 - Full Membership (Plus an Optional Donation)**
- **$15.00 - Family Membership**
- **$25.00 - Associate Membership (Plus an Optional Donation)**

**March 31, 2026 is the deadline to renew your membership dues**

## January 7, 2026 : Club Member Group Photo

**At our General Membership Meeting on January 7, 2026, we will be taking a picture of our membership to submit to the ARRL to hopefully be published in QST Magazine.**

**The ARRL has designated 2026 as the "Year Of The Club". Clubs can submit membership pictures, newsletters, and websites.**

**Club members are encouraged to wear their Club clothing at the January Meeting. ZOOM participants should turn on their cameras so we can get a screenshot of them.**

## Welcome New Club Members :

- **Cole Bonner KE2GYA, a Technician Class from Manahawkin, NJ**
- **Dean Marzocca N2TNN, an Amateur Extra Class from Vineland, NJ**
- **Alexander Williams KE2HHX, a Technician Class from Sewell, NJ**

We are glad to have you as a member of the Club and hope to see you regularly at Club meetings, events, and activities. Hope to see you at :

- **The January 7th General Membership Meeting, either in-person or on ZOOM**
- **The January 10th Tech Saturday Forum @ the W2MMD Clubhouse**
- **Fox Hunt 35 - Winter Fox Hunt on January 11th**
- **Meshtastic 915 MHz Setup Work Session on January 17th**
- **The Board of Directors Meeting on January 21st**
- **Winter Field Day on January 24th**
- **The Dinner @ The W2MMD Clubhouse on January 28th**

**We also hope to "SEE" you on the "AIR" on the following nets :**

- **Sunday Night Skywarn 2 Meter Net @ 1930 Hours**
- **Sunday Night ARES 2 Meter Net @ 2000 Hours**
- **Tuesday AfterNoon 2 Meter Net @ 1200 Hours**
- **Monday & Thursday Night 40 Meter Nets on 7.170 MHz (+/- 5 or 10 kHz) @ 1900 Hours**
- **Thursday Night Rag Chew 2 Meter Net @ 2000 Hours**

**All 2 Meter Nets are on our 147.180 MHz (PL 131.8) repeater or on EchoLink W2MMD-R.**

## So you find our website confusing, can't find anything

**I have created a page called "Quick Links"**

**On this page you will find "Buttons" to some the most popular pages**
**I will add more as time goes on, but I hope this helps your journey navigating through your Club Website!**
**https://gloucestercountyarc.weebly.com/quick-links.html**

**General Membership Meeting**

**Wednesday, January 07, 2026 @ 1900 Hours**

**Pfeiffer Community Center**

**Simulcast Live Via ZOOM : Meeting ID : 982 4039 1944; Passcode : 091084**
**Join ZOOM Meeting Link : https://bit.ly/44KPTqc**

**Go to : https://gloucestercountyarc.weebly.com/2026-content--activities--resources.html to download the ZOOM log-on instructions PDF**

## Building A Practical HF Home Station After Retirement

**By Kevin Zembower KC3KZ**

This month's program features **Kevin Zembower KC3KZ**, who recently retired at 62 and will present a practical case study on designing and deploying a cost effective, rapidly deployable amateur radio station. He will explain the choices and tradeoffs required to meet a modest budget and describe the hands on work of building and installing antennas on a compact Baltimore city lot.

**What you will learn :**

- **Station planning :** Criteria used to select transceivers, power options, and essential accessories.
- **Antenna challenges and solutions :** The process and obstacles of installing an HF dipole in a constrained urban yard, plus descriptions of other antennas built and erected.
- **Buying guidance :** Practical advice for purchasing new and used equipment, including priorities and common pitfalls.
- **Software and operating tools :** Programs and utilities useful for logging, propagation analysis, and station control.

**Intended audience :**

- New or returning amateur radio operators seeking a cost effective HF setup.
- Retirees interested in a straightforward, practical approach to getting on the air.
- Club members and technical volunteers who advise others on small lot installations.

In addition to exploring the construction of a modern HF station, the overview of the current state of microcomputer-based control functionality should be impressive.

**I hope to see you there.**

## Tech Saturday Forum

## January 10, 2026 @ 0900 Hours

## W2MMD Clubhouse

Happy 11th Anniversary!

## Forum Topic : SDR Overview

**Join us for January's Tech Saturday as we dive into the exciting world of software-defined radio. We'll focus on the affordable, compact SDR devices that connect to your computer via USB (or network) - not the full-featured, self-contained transceivers like the FlexRadio series.**

**The session will cover :**

- **The basics of how SDR works**
- **The main categories of popular SDR hardware**
- **Several useful SDR programs for everyday operating and experimentation**
- **Connecting to remote SDR servers using tools like SpyServer and OpenWebRX**

**Want to get hands-on? If you don't already have an SDR, a great low-cost way to start is this Amazon kit that includes an RTL-SDR dongle plus a small dipole antenna (suction-cup or tripod mount). Order it here : https://bit.ly/4jf7VXF**

**Before the session, follow the driver installation instructions (https://wp.w2mmd.org/wp/installing-an-rtl-sdr-on-a-windows-pc) on the GCARC Skunkworks website so your radio is ready to go when you arrive.**

**Session format : We'll begin with a short overview presentation, followed by live demos and plenty of time for hands-on help. Bring your laptop - we'll set up radios, try different software, and even connect to web-based public SDRs (no hardware needed for those).**

**Everyone is welcome - whether you're brand new to SDR or just want to see what's possible. See you there!**

## Upcoming Tech Saturday Forums

### February 07, 2026 & March 07, 2026

### ** Digital Radio Deep Dive **

### ** Packet - WSJT Modes - FL-Digi Modes - Meshtastic **

# Introducing Your 2026 Club Officers!

**All the votes were tabulated by the legal firm Flywheel, Shyster, and Flywheel**

**President**
**Jon Pearce**
**WB2MNF**

**Vice President**
**Ron Block**
**NR2B**

**Recording Secretary**
**John Zaruba Jr K2ZA**

**Treasurer**
**John O'Connell**
**K2QA**

**Director**
**Chris Prioli**
**AD2CS**

**Corresponding Secretary**
**Mike Resnick**
**N2WOQ**

**Director**
**Jim Wright**
**N2GXJ**

**Trustee**
**Greg Ciraula**
**K3GC**

# Fox Hunt 35 - Winter Fox Hunt - Foxhunt Fun 1-11 @ 1!

**By Jim Wright N2GXJ**

Something special happens Sunday, January 11, 2026 at 1pm, and we'd like for you to join in! This is the date and time of the next GCARC radio fox hunt. Some of the most memorable and fun fox-hunts have been the winter ones! Reserve the date now. What a great way to kick off the new year!

Never been in a fox hunt before? No problem! This family friendly event is great excuse to get some fresh air out of the house together. Part of the fun is in the experience, learning and improving by trying new things hands-on in the field. Care to give it a try? Some words on what to expect I've included below, but if questions, please feel free to reach out to me (**Jim Wright N2GXJ**) ahead of time. My number and email address are in the Club Roster. These really are fun events. You should plan to join in, if you can!

**Marc Federici WM2Y**, will be the ***"fox"***, hiding the transmitter this time. He'll send an email to all Club members via the Club's email reflector the day before with further details. If he's nice, we might be able to find it without having to get out of our cars. But then again, this is Marc. He's built his own transmitters for us to find in the past. ***What have you got in mind for us this time, Marc? We'll see!***

## What to expect?

A radio foxhunt is like a hide and seek, where we, as hunters (the ***"hounds"***), try and locate a low power transmitter that the ***"fox"*** has placed in a public location, and turned on at a designated time for us to try and find.

In our hunts, hounds can work individually, or together in teams, using whatever methods and technology and techniques they choose to try to home-in and find the transmitter. A common approach involves using a portable radio and taking signal strength measurements, knowing that the closer you are to the transmitter, the stronger the signal will be. Some will use directional antennas, with attenuators to knock down the received signal strength when they get in closer, but other techniques have been successful as well.

Some hunts involve an on-foot only search, with everyone starting from the same spot (such as for a hunt in the 4H Fairgrounds, starting from our Clubhouse parking lot). Some hunts involve driving only, where you can drive right up to where the transmitter is without having to get out of your car. But most involve some combination of the two, where you drive until you are close, then finish on foot. The person hiding the fox transmitter decides, and lets us know what to expect ahead of the event.

On the day before the scheduled hunt, the fox will send out an email to the Club's email reflector with a description of the hunt area, narrowing it down to just a few square miles, to give us hounds a fighting chance to find it with less than an hour of searching. With that information, and knowing that the hiding spot has to be on public property, not on private nor school property (to avoid problems with that), hunters will break out their favorite mapping apps and plan out their hunt strategies.

***Fox Hunt 35 - Continued on page 9***

*Fox Hunt 35 - Continued from page 8*

Hunters are encouraged to pre-program their radios with hunt frequencies and test them prior to the start of the hunt. The Pitman repeater transmits on **147.180 MHz** (listening +0.6, PL tone 131.8). The fox transmits on **146.565 MHz** (FM Simplex), with third harmonic **439.695 MHz** for closer-in tracking, unless informed otherwise by the fox prior to the start of the hunt. Just a reminder, if you use an offset attenuator when hunting the fox, you'll have to program a different frequency that is offset from this for the attenuator to work properly.

Ahead of the start time on the day of the hunt, hunt teams drive to position themselves to wherever they chose to start in or near the hunt area. During the 10 minutes before the start time, hunt teams are asked to check-in with the fox on our Pitman 2M repeater, so that we'll all know who is hunting. That way, we'll know if anyone is still hunting after an hour, so we can help talk them in to the finish line. If you can't reach the repeater via RF, you can try via **EchoLink W2MMD-R** if you've set it up ahead of time on your cell phone. If all else fails, and you're in the hunt area, you can try and contact other hunters on the fox's simplex frequency, for them to relay in the information.

At the start time, the fox will turn on the transmitter, and announce it over the repeater. Once the hunt starts, we all move off the repeater frequency, and onto the fox's simplex frequency, and continue there until the event is over. If you need help during the hunt, or if the fox needs to contact us with additional instructions or hints during the hunt, we'll use fox's simplex frequency during the gaps between the fox's transmissions.

First to find the transmitter gets the honor of being the fox to hide it for others to find the next time. If any teams are still hunting after an hour, they'll be talked in to the finish, where we'll exchange hunt stories and pose for a group picture.

Typically, we run one foxhunt per season, which means you might want to make an effort to not miss the next one. So gear up, and don't miss this next one! Future foxhunts will get announced a few weeks ahead of the event at our Club meeting, on our website, via our email reflector, and in CrossTalk.

**That's it! Hope to see you on the next hunt!**

## 2026 Winter Field Day : January 24, 2026 @ 1100 Hours

**https://winterfieldday.org**

As some of you may be aware, the 2026 edition of the Winter Field Day event is slated for the last weekend in January, which is the 24th and 25th of January in 2026. This event is considerably different from the ARRL summer Field Day event that takes place during the last weekend in June each year. In point of fact, this event is so different that it is not even an ARRL driven event. It is actually an event promoted by the Winter Field Day Association.

For those who may be interested in the rules for this event, you can read all about it at **https://winterfieldday.org**. Click on the Rules menu item to get to the rules and regulations for the event.

If you are interested in participating, please reach out to Frank Romeo N3PUU. His contact information is available in the Club roster, and he can be found at the Clubhouse on most Saturdays.

We hope to have a successful Winter Field Day this time out, as we did last year. That is possible only with your help and participation. Get involved!

## GCARC Meshtastic 915 MHz Setup Work Session

## When : Saturday, January 17, 2026 - Starting at 9:00 AM

## Where : W2MMD Clubhouse

## Who : Everyone interested in Meshtastic 915 MHz!

Many Club members have already moved their Meshtastic operations to the unlicensed 915 MHz band or are setting up new 915 MHz nodes. These devices work differently from our earlier 433 MHz licensed setups :

- **They use channels (not fixed frequencies)**
- **Must stay in unlicensed mode**
- **Have several other important configuration differences to ensure they connect properly to our growing local mesh.**

To help everyone get up and running smoothly, we're holding a hands-on collaboration work session at the Clubhouse.

We'll start with a short overview of the key setup points for 915 MHz nodes, then work informally together to :

- **Flash firmware on new devices**
- **Configure region, channels, and other settings**
- **Pair devices with phones**
- **Troubleshoot connection issues**
- **Get nodes visible on the local mesh**

If you're new to Meshtastic or struggling to get your 915 MHz node working properly - this is the perfect opportunity to get help.

If you're already running Meshtastic successfully - please come out and lend a hand! Your experience will be invaluable in assisting others.

**Preparation Tip :** Before the session, take a look at the comprehensive 915 MHz guide on the GCARC Skunkworks site : **https://wp.w2mmd.org/wp/getting-started-with-meshtastic-on-915-mhz-a-comprehensive-guide**

Bring your devices, antennas, USB cables, laptop (if you have one), and phone - we'll have extras available too.

**A *Club* that goes *above* and *beyond* for their communities and for Amateur Radio, is what defines a *Special Service Club (SSC).***

**They are the leaders in their Amateur Radio communities who provide active training classes, publicity programs, and actively pursue technical projects and operating activities.**

**GCARC has been an ARRL Affiliated Club since February 1960 and an SSC since April 2010.**

# GCARC Monthly VE Exam Testing Summary - December 2025

**By Chris Prioli AD2CS**

This month's VE session was interesting, in that one of the candidates had two FRN's and had to decide which FRN to use for his exams. This was because he had let his license lapse past the two-year grace period and had to start over, and he wanted to start over clean. Sure, he could have regained his previous General rating simply by taking the current Element 2 exam, but he wanted to start over with no reference on the license history to his physical address, as he had plans to start a YouTube career, and he wanted some anonymity for that endeavor. He ultimately decided to use the new clean FRN and to re-take the full set of exams to earn his Amateur Extra. The VE session was held at the W2MMD Clubhouse and was administered by Volunteer Examiners as listed below, with Chris Prioli AD2CS serving as Team Liaison for the event :

- **Greg Ciraula K3GC**
- **MaryLu Ciraula K3MLC**
- **Earl Moore KC2NCH**
- **John O'Connell K2QA**
- **Mike Resnick N2WOQ**
- **Courtney Smith KD2SPJ**

The exam candidates sat for various exams, with one sitting for the Element 2 (Technician) exam, two sitting for the Element 4 Amateur Extra exam, and the fourth candidate, as mentioned above, sat for all three Elements. Each of the candidates was successful in his intended attempt. The new Technician did attempt the Element 3 (General) exam, but was not successful there. The candidates were :

- **Troy Clancy KE2BXW of Franklinville, NJ, (Element 4)**
- **William Ward (Awaiting Callsign) of Birmingham, NJ (Element 2, 3, & 4)**
- **Jason Watkins KD2VVJ of Vineland, NJ (Element 4)**
- **Anthony Williams KE2HHX of Sewell, NJ (Element 2)**

The VE Team proctored the exam session using completely electronic methodologies. This means that the candidates completed the exams online, and that all grading and submissions were done online as well.

The next regularly-scheduled VE session will be held on Thursday, 8 January 2026, at 1900 Hours and will be held at the W2MMD Clubhouse. The VE team will be using the ExamTools system to its fullest capability, within our current technological means.

It is important that all test candidates going forward will be advised, whenever possible, to pre-register and pre-pay for the exam online. Specifics of that process are explained at : **https://veteam.w2mmd.org**

ARRL is calling on all radio amateurs and GRMS licensees to join our nationwide grassroots campaign to pass the **Amateur Radio Emergency Preparedness Act**. ARRL has made it very easy to send your letters to Congress. Hams should go to **https://send-a-letter.org/HOA** and GMRS users should go to **https://send-a-letter.org/GMRS**. The letters will automatically be sent to your elected officials encouraging them to support the bipartisan bills. Passage would give amateur radio operators the same rights to install antennas on their property as those enjoyed by users of TV antennas, wireless internet, and flagpoles. Radio clubs should also prepare letters of support, signed by each club officer. See instructions for clubs (PDF) and a sample letter for clubs (DOCX). For more information about the ARRL campaign to Pass The Bill, visit **www.arrl.org/HOA**. And please share these YouTube videos on your personal social media.

***Article Credit : The ARRL Letter for November 6, 2025*** - **www.arrl.org**

## Traffic Handling Training In Southern New Jersey

**By Dave Sheppard W2PAX**
**SNJ Section Traffic Manager**
**SFL Section Traffic Manager**

**75-Meter Interstate Sideband Net (ISBN) - Independent Nets in Support of NTS**

Independent nets, while not affiliated with NTS, provide a valuable contribution to the relay of radiogram message traffic, often with outlets into otherwise hard-to-reach areas. Many of their members are also associated with NTS traffic nets. This month, I would like to highlight the 75-Meter Interstate Sideband Net, which serves the US and Canada (yes, we call for Canadian stations too!). The net has been operating continuously since 1952 and can be found at 3985 kHz daily at 0100 UTC, 365 days per year, and welcomes all licensed amateurs to participate.

The net is co-managed by Dennis Carlson K9ZMI; Mike Leger W8PQ, and Dave Sheppard W2PAX.

First-time check-ins will receive a PDF welcome card to the net. A unique part of the ISBN is its birthday radiogram program. All check-ins have the option of providing their birth month & day to a net manager, and each year will receive a birthday radiogram. It's a great way to generate traffic across the country for the net. The ISBN website can be found at : **https://www.qsl.net/75misbn**. If you have 75-meter capability in the US or Canada, check it out.

***Article Credit : NTS Letter for December 2, 2025*** - **www.arrl.org**

## 2026 Radio Merit Badge Day

**By Jon R Frush W8JRF**
**BSA Troop 44 Pennington, NJ**
**jon.r.frush@gmail.com**

It's the time of year when we recruit Amateur Radio Operators to assist with the annual Radio Merit Badge Day at The College Of New Jersey on Saturday, January 3, 2025! This event has been held since 2005 and has introduced nearly a 1000 Scouts, parents, and leaders to Amateur Radio! As of today we have 47 scouts registered for the event and have begun a waiting list.

We will be returning to Armstrong Hall at TCNJ again this year. The event runs from 8AM to 4PM on Saturday, January 3, 2026 for instructors. Specifically I am looking for a few volunteers that can help with on air (VHF or HF) activations and Radio Direction Finding.

Please reply to me privately at jon.r.frush@gmail.com by Sunday, December 21, 2025 if you are available to help that day. If you have helped in the past and have a preference for which job you do at the event please indicate that. I will try to finish compiling that information by Tuesday, December 30, 2025 and have a completed roster to send out.

Even if you aren't able to support the event in person we need operators to respond to scout calls to fulfill the on air requirement's. We are typically on the area repeaters and HF bands as propagation allows. I thank you for all that you do for the Amateur Radio community and for Scouting.

This event is well known in the area for introducing Amateur Radio to youth, and your excitement for the hobby and willingness to share it could be the spark that kindles a love of something new in a Scout!

Additional information can be found at : **https://n2re.org/radiomb**

## Membership Badges Ready For Pick-Up

***They can be picked up at the W2MMD Clubhouse or at the monthly General Membership Meetings***

**Dave Danichkin KD2UXC**
**Jon Davidson KE2DYD**
**Jim Foster W3JNF**
**Gary Hewitt N2WHV ***
**Frank Parsinitz KD2GSY**
**Marian Yanka KE2GOL**

The Clubhouse is open and accessible every Saturday from 0700 until 1600 Hours, and on the third and fourth Wednesday evening of each month as well as the second Thursday evening of each month from about 1700 until 2000 Hours.

The badges can also be picked up at any General Membership Meeting. They will be displayed at the Hospitality Table

If there is an asterisk (*) after your call sign above, your badge is a replacement and has a cost of $5.00 payable to the Club at the time of pickup of the badge.

Straight Key Night
Every day is a good day to send CW, but January 1 is reserved for Straight Key Night. Enjoy CW as it has been sent and enjoyed since the earliest days of Amateur Radio.

**Straight Key Night is held every January 1 from 0000 UTC through 2359 UTC. This 24-hour event is not a contest; rather it is a day dedicated to celebrating our CW heritage. Participants are encouraged to get on the air and simply make enjoyable, conversational CW QSOs. The use of straight keys or bugs to send CW is preferred. There are no points scored and all who participate are winners.**

**http://www.arrl.org/straight-key-night**

## New Members Support Group & Discord Channel

- **Organized By Jim Beury KE2DRN**
- **Objective : To focus Club resources on the needs of newly licensed members**
- **Supported by "new_members" Discord Channel**

### Additional Support :

- **Saturday Morning @ The W2MMD Clubhouse**
- **GCARC@MAILMAN.QTH.NET Club E-mail Reflector**
- **E-Mail President @ w2mmd.org**

## *DAs & DITs*

>> Our Club family has lost another member! **Jerry Marinacci KE2CK** passed away on November 23, 2025. Condolences to his family and friends. Jerry has been a member since 1983. **Rone Funeral Home Obituary : https://ronefuneralservice.com/tribute/details/5223/Jerry-Marinacci/obituary.html**

>> Congratulations to the following Club members :

- **Troy Clancy AD2LY (ex. KE2BXW)** : Vanity callsign and upgrade to Amateur Extra Class
- **Eric Morris N2BRJ :** Upgrade to Amateur Extra Class
- **Jason Watkins KD2VVJ :** Upgrade to Amateur Extra Class

>> **John O'Connell K2QA**, reports : **SWR Magazine**, a new and free ham radio magazine. To subscribe, go to : **https://fliphtml5.com/site/85123127/index.html**

>> **ARRL Atlantic Division Director Bob Famiglio K3RF** was interviewed on October 19, 2025 by FOX29. Here is the YouTube link to that interview : **https://youtu.be/JmFp9HXm3Y8?si=BnyBXCvkxwQ7CR_k**

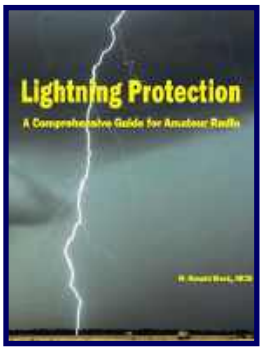
>> Audio recordings of **John Zaruba K2ZA**'s October 4th & November 8th Tech Saturday presentations can be found at : **https://skunkworks.w2mmd.org/tech-saturday-presentations**

**Wednesday, January 7, 2026**

**Happy Birthday, Ben!**
**January 17, 1706**

Law Enforcement Appreciation Day

**Lightning Protection :**
**A Comprehensive Guide for Amateur Radio**
**Author : W. Ronald Block, NR2B**
**Contact : ron@wrblock.com**
**Website : www.wrblock.com**



## Regional (Atlantic & Hudson Divisions) Hamfests & Events

**January 10, 2026 :** Skyline Amateur Radio Club, Marathon Winter Hamfest, Marathon Civic Center, 11 Brink Street, Marathon, NY. **www.skylinehamradioclub.org**

**January 10, 2026 :** Harrisburg Radio Amateurs Club, WinterFest, Vietnam Veterans of America, 8000 Derry Street, Harrisburg, PA. **www.w3uu.org**

**January 10, 2026 :** Ham Radio University, ARRL New York City-Long Island Section Convention, LIU-Post College, Hillwood Commons Student Center, 720 Northern Boulevard, Brookville, NY. **www.hamradiouniversity.org**

November 8, 2025 Tech Saturday Forum : John Zaruba Jr K2ZA : DigiPi & APRS

***Club Merchandise from the K2ZA Workshop***
**Contact John Zaruba Jr K2ZA at k2za@icloud.com**
**Go To : https://gloucestercountyarc.weebly.com/club-merchandise.html**

***"Dinner @ The W2MMD Clubhouse"***
**Wednesday, January 28, 2026 @ 1800 Hours**

**Current Website Updates : Go to this page to find out the latest changes & updates on our W2MMD Website**
**https://gloucestercountyarc.weebly.com/current-website-updates.html**

# *The Education Connection*

**By Chris Prioli AD2CS - chris@ad2cs.com**
**www.ad2cs.com**

## January 2026

Happy New Year to all of my readers! As the new year rolls around, so does my planning for the next session of the ***GCARC Ham License Preparation Classes***, which will be ***Session X***. This session had been postponed from the Fall 2025 time slot due to a lack of registrants for the classes. I hope, especially with our recent influx of new members, that we will have sufficient registrants to allow running the classes this Spring.

The class meeting schedule has been set. Note that the classes will meet every week starting in the first week of April and running through the last week of June, with all classes and associated exams completed by 29 June 2026. There is, however, one notable exception. The Element 2 (Technician) class ***will not*** meet on Monday, 25 May 2026 due to the Memorial Day holiday.

**GCARC Ham Exam Preparation Class Session X Class Meeting Schedule**

| Element 2 | | Element 3 | | Element 4 |
|---|---|---|---|---|
| 4/6/2026 | | 4/7/2026 | | 4/10/2026 |
| 4/13/2026 | | 4/14/2026 | | 4/17/2026 |
| 4/20/2026 | | 4/21/2026 | | 4/24/2026 |
| 4/27/2026 | | 4/28/2026 | | 5/1/2026 |
| 5/4/2026 | | 5/5/2026 | | 5/8/2026 |
| 5/11/2026 | | 5/12/2026 | | 5/15/2026 |
| 5/18/2026 | | 5/19/2026 | | 5/22/2026 |
| (MEM DAY) | | 5/26/2026 | | 5/29/2026 |
| 6/1/2026 | | 6/2/2026 | | 6/5/2026 |
| 6/8/2026 | | 6/9/2026 | | 6/12/2026 |
| 6/15/2026 | | 6/16/2026 | | 6/19/2026 |
| 6/22/2026 | | 6/23/2026 | | 6/26/2026 |

The schedule now calls for a total of twelve weeks of class meetings (eleven for the Element 2 group), with the FCC exams being administered in a single joint session on Monday, 29 June 2026. This is the first time that we will be holding one single exam session for the entire body of students. This is because of the need to staff the exam session with qualified Volunteer Examiners and my desire not to impose on these very important volunteers any more than is necessary. With the exams now being administered via computer instead of via pen and paper, much less time is needed for the overall process. The exam candidates will get their exam results immediately, at the click of a mouse. Holding a single exam session puts much less strain on the VE program and its staff, so I decided to handle the testing in this manner this time out.

Please note that the scheduled exam date is the Monday evening ***after completion of the twelve weeks of scheduled class meetings***. In this manner, all twelve weeks can be dedicated to the educational aspect of the program and preparation for the exam. We will not have to take any class meeting time out for the exam - it will have its own scheduled date.

At this point, the plan is to hold the registration fee at the same $35.00 level that is has been for the past two years. For that low fee, the student gets :

- The full benefit of the classroom group training experience
- Exposure to scheduled practice exams
- A complete set of full-color printed proprietary GCARC educational handouts - graphs, tables, visual graphics, equations, and more

***The Education Connection - Continued on page 17***

*The Education Connection - Continued from page 16*

- A flash drive loaded with useful information including videos, glossaries, the complete text of 47 CFR §97, the applicable question pool, PDF files of all of the handouts, and more
- A personal copy of the ***Craig Buck Easy Way*** reference manual appropriate for the Element in which the student is enrolled
- Access to the wealth of knowledge of the instructional staff, with personalized attention whenever a student has questions that need to be answered

The GCARC Ham License Exam Preparation Class program is arguably the best of its kind, with a total of 103 students having passed their FCC exams upon completion of our training program, since its inception in January 2022. That is spread over a total of nine previous sessions, and it speaks loudly and well for the quality of the training offered in our program.

If you have been wanting to upgrade your license, ***now*** is the time to do it. Go to the License Classes page : **https://gloucestercountyarc.weebly.com/license-classes.html** - of the **W2MMD.ORG** website for enrollment information and to complete the enrollment form and also to pay the $35.00 class fee.

On another topic… if you are one of the two-dozen individuals who participated in the GCARC 915 MHz Mesh-tastic Yagi Antenna Build event, we are looking for some feedback from ***you***. Drop a quick email either to me or to ***Jon Pearce WB2MNF***, describing the successes that you had with the antenna in operation. The email addresses can be found in the Club roster. We are looking to gather some anecdotal stories to be used in a planned piece to be written about the overall project. While we are not yet sure of the target publication, we certainly want to publicize this build, as it was a well-attended and productive build, and a success overall for the Club.

***That's all, folks! See you next month…***

## ADIF Logs Wanted When Operating As W2MMD @ The Clubhouse

**By Jim Wright N2GXJ - Contact me via e-mail on Club Roster List**

**It is a common courtesy in ham radio to be able to QSL 2-way contacts made with other hams. We're pretty good about doing this for our field day contacts made each year, but are falling behind in this for contacts we make from the Clubhouse as W2MMD.**

### So here is the ask :

**If you operate from the Clubhouse as W2MMD (e.g. on HF, UHF/VHF, or on Satellite, at Tech Saturday, or during contests or other), please email me the electronic log entries in ADIF format from the logger program you used for those contacts?**

**That way, just like I do following field day each year, I can get them uploaded to LOTW and to eQSL to offer the courtesy of an electronic QSL to those who make contact with us as W2MMD here in NJ.**

### Thank you

## Full Wolf Moon - Saturday, January 3, 2026 @ 0503 Hours

**The howling of wolves was often heard at this time of year. It was traditionally thought that wolves howled due to hunger, but we now know that wolves use howls to define territory, locate pack members, reinforce social bonds, and gather for hunting. It is possible that European settlers may have used the term "Wolf Moon" even before they came to North America. Another name for this time period was the Center Moon, from the Assiniboine people, because it was the middle of the winter season.**

**The Cree names of Cold Moon and Frost Exploding Moon refer to the frigid temperatures of this season, as does the Algonquin name of Freeze Up Moon. The Dakota names of Severe Moon and Hard Moon refer to the extreme cold and hard times of this season, as well as the fact that the snow sometimes develops a hard crust. Other names for this time include Canada Goose Moon (Tlingit), Great Moon (Cree), Greetings Moon (Western Abenaki), and Spirit Moon (Ojibwe).**

**Old Farmer's Almanac - www.almanac.com**

## New ZOOM Guidelines For General Membership Meetings

To enhance the experience for everyone attending the General Membership Meeting, whether in person or via Zoom, the Board of Directors has established some guidelines for Zoom participants. These guidelines are designed to ensure that everyone can focus on the meeting while also allowing Zoom participants to interact before the meeting starts.

**Here are the guidelines:**

- **Before the Meeting :**
  - Zoom participants are welcome to keep their cameras and microphones on to chat among themselves before the meeting begins. During this time, the Zoom audio will not be broadcast to the general audience, and local audio will not be connected to the Zoom meeting.
- **During the Meeting :**
  - Just before the Pledge of Allegiance, a reminder will be posted for Zoom participants to mute their microphones and turn off their cameras. This ensures that all Zoom participants will see the meeting camera instead of another Zoom participant's camera. Participants in the room never see the cameras of the Zoom participants.
  - Zoom participants can use the ***"Raise Your Hand"*** button to ask questions or make comments at appropriate times during the meeting. The Zoom operator will notify the moderator, who will recognize the comment or question at the right time.
- **After the Business Meeting :**
  - The Zoom audio will be muted immediately after the business meeting concludes to prevent any disruptions to the in-person audience from the PA speakers.

Please adhere to these guidelines to ensure a smooth and enjoyable meeting experience for everyone. Following these protocols will help us maintain an inclusive and focused environment for both in-person and remote attendees. Thank you for your cooperation!

## Tuesday AfterNoon Net @ 1200 Hours

## 147.180 MHz (+) (131.8) Repeater & EchoLink W2MMD-R

### Here is the schedule for the upcoming weeks

**Greg Ciraula K3GC : January 6, 2026**
**Steve Farney W2SEF : January 13, 2026**
**Rich Subers W2RHS : January 20, 2026**
**Jeff Garth WB2ZBN : January 27, 2026**

**Greg Ciraula K3GC : February 3, 2026**
**Steve Farney W2SEF : February 10, 2026**
**Rich Subers W2RHS : February 17, 2026**
**Jeff Garth WB2ZBN : February 24, 2026**

**Greg Ciraula K3GC : March 3, 2026**
**Steve Farney W2SEF : March 10, 2026**
**Rich Subers W2RHS : March 17, 2026**
**Jeff Garth WB2ZBN : March 24, 2026**
**Steve Farney W2SEF : March 31, 2026**

**Greg Ciraula K3GC : April 7, 2026**
**Steve Farney W2SEF : April 14, 2026**
**Rich Subers W2RHS : April 21, 2026**
**Jeff Garth WB2ZBN : April 28, 2026**

**If you would like to be a Net Control Station for this net, please contact Steve Farney W2SEF**

## Thursday Night Rag Chew Net @ 2000 Hours

## 147.180 MHz (+) (131.8) Repeater & EchoLink W2MMD-R

### Here is the schedule for the upcoming weeks

***Happy New Year : January 1, 2026***
**Mary Delemarre W2TDS : January 8, 2026**
**Gary Mirkin WA3SVW : January 15, 2026**
**Steve Farney W2SEF : January 22, 2026**
**Jeff Garth WB2ZBN : January 29, 2026**

**Jeff Garth WB2ZBN : February 5, 2026**
**Mary Delemarre W2TDS : February 12, 2026**
**Gary Mirkin WA3SVW : February 19, 2026**
**Steve Farney W2SEF : February 26, 2026**

**Jeff Garth WB2ZBN : March 5, 2026**
**Mary Delemarre W2TDS : March 12, 2026**
**Gary Mirkin WA3SVW : March 19, 2026**
**Steve Farney W2SEF : March 26, 2026**

**Jeff Garth WB2ZBN : April 2, 2026**
**Mary Delemarre W2TDS : April 9, 2026**
**Gary Mirkin WA3SVW : April 16, 2026**
**Steve Farney W2SEF : April 23, 2026**
**Jeff Garth WB2ZBN : April 30, 2026**

**If you would like to be a Net Control Station for this net, please contact Jeff Garth WB2ZBN**

## Need a ride to a Club meeting, event, or activity?

**Just send a message to the Club's e-mail reflector asking if a member can pick you up**

**GCARC <*at*> MAILMAN <*dot*> QTH <*dot*> NET**

**All Club members have access to this FREE e-mail service**

## Gloucester County Skywarn Net

**The Gloucester County Skywarn Net is held every Sunday @ 1930 Hours on the 147.180 MHz (+) (131.8) Repeater & EchoLink W2MMD-R**

**All Are Welcome To Participate**
**Net Control Station : Jeff Garth WB2ZBN**

## Gloucester County ARES Net

**The Gloucester County ARES Net is held every Sunday @ 2000 Hours on the 147.180 MHz (+) (131.8) Repeater & EchoLink W2MMD-R**

**All are welcome to participate**

**Net Control Stations :**

**Al Arrison KB2AYU; Angela Metzger KE2DRJ; Bob Keogh KD2NEC; Craig Metzger KE2GNU; Gary Mirkin WA3SVW; Karl Frank W2KBF; Steve Farney W2SEF; & Todd Woodward KD2ESH**

**Steve Farney W2SEF : January 4, 2026**
**Al Arrison KB2AYU : January 11, 2026**
**Gary Mirkin WA3SVW : January 18, 2026**
**Angela Metzger KE2DRJ : January 25, 2026**
**Karl Frank W2KBF : February 1, 2026**
**Bob Keogh KD2NEC : February 8, 2026**
**Todd Woodward KD2ESH : February 15, 2026**
**Craig Metzger KE2GNU : February 22, 2026**

**Steve Farney W2SEF : March 1, 2026**
**Al Arrison KB2AYU : March 8, 2026**
**Gary Mirkin WA3SVW : March 15, 2026**
**Angela Metzger KE2DRJ : March 22, 2026**
**Karl Frank W2KBF : March 29, 2026**
***Happy Easter : April 5, 2026***
**Bob Keogh KD2NEC : April 12, 2026**
**Todd Woodward KD2ESH : April 19, 2026**
**Craig Metzger KE2GNU : April 26, 2026**

**Anyone who is interested in joining the Gloucester County ARES Team, is invited to contact Bob Keogh at KD2NEC @ QSL.NET**

## Monday & Thursday Night 40 Meter Net @ 1900 Hours
## 7.170 MHz (Plus or Minus 5 to 10 kHz )
## NCS : Jim Clark KA2OSV

## ARRL Learning Center
**https://learn.arrl.org**

**Discover how to make Amateur Radio your own.**

**Online courses from the ARRL Learning Center provide ARRL members with additional instruction and training for getting on the air, emergency communications, and electronics and technology**

# *At The Repair Bench…*

***A monthly column describing a recent repair bench event.***

**By Chris Prioli AD2CS - chris@ad2cs.com - www.ad2cs.com**

## MFJ-993B IntelliTuner Automatic Antenna Tuner - January 2026

**Figure 1 : MFJ-993B IntelliTuner**

Not too long ago, one of my fellow GCARC members approached me with a request to repair his Icom IC-7300 transceiver, which had suddenly lost all RF output power. I went to his home armed with my CCT-01 coaxial cable tester and my Rig Expert AA-650 ZOOM antenna system analyzer. The intent was to see if I could identify any possible external causes for the sudden loss of power output, as this seldom happens in a vacuum.

On arrival, we tested the short length of coaxial cable that was in place between the radio and the **MFJ-993B IntelliTuner Automatic Antenna Tuner (Figure 1)** that was in use with the Icom. That cable tested good, as did a second cable that the owner had on hand there as a back-up in case of any problems with the first cable.

The next test was that of the antenna system, where we found some considerable discrepancy with what should be a desirable VSWR for the bands upon which the owner normally operated. His normal operation was FT-8 using the 40-meter band, with occasional FT-8 operation at 20 meters and also some scattered use of FT-8 at 10 meters. His best match was actually at the 10-meter band, which told me right off that his antenna was longer than it should have been for optimal 40-meter operations. There was quite a bit of wire sag that had occurred since the antenna had been hung, several years earlier. This was nothing that was not fairly easily cured, but also not enough to account for the sudden demise of the radio. I brought the radio and the antenna tuner back to the shop for some further investigation, diagnosis, and analysis - and ultimately for repair.

I found the problems in the radio quickly enough, and that is the subject of a future ***Repair Bench*** article. This article is meant to detail the findings and repair of the antenna tuner.

Some of you may have taken note of an earlier ***Repair Bench*** article that I wrote a few months back, describing the problems with the mounting of the SO-239 connectors to the rear panel of an MFJ-949E Versa-Tuner. This tuner had the same issue, caused by an identical connector mounting scheme. I see this purely as a cost-cutting move on the part of MFJ, but it is ill-advised and certainly leads to problems for the user. To describe the issue, start out by noting that the ***common*** flange-mounted SO-239 connector has a four-bolt mounting pattern, with the holes spaced on 0.750” centers forming a square.

Now… any right-thinking engineer would surely mount the connector using a positive retention method such as machine screws and locking nuts, or at least standard hex nuts and toothed lock washers that would properly ***“dig into”*** the aluminum panel material, forming a good and secure mount. However, that is not at all what MFJ chose to do with many of their tuners. Instead, they used aluminum pop rivets to retain the SO-239 connectors in place. Not only did they use pop rivets, but they populated only two diagonally-opposite mounting holes in each connector flange rather than the full complement of four fasteners.

***At The Repair Bench - Continued on page 22***

*At The Repair Bench - Continued from page 21*

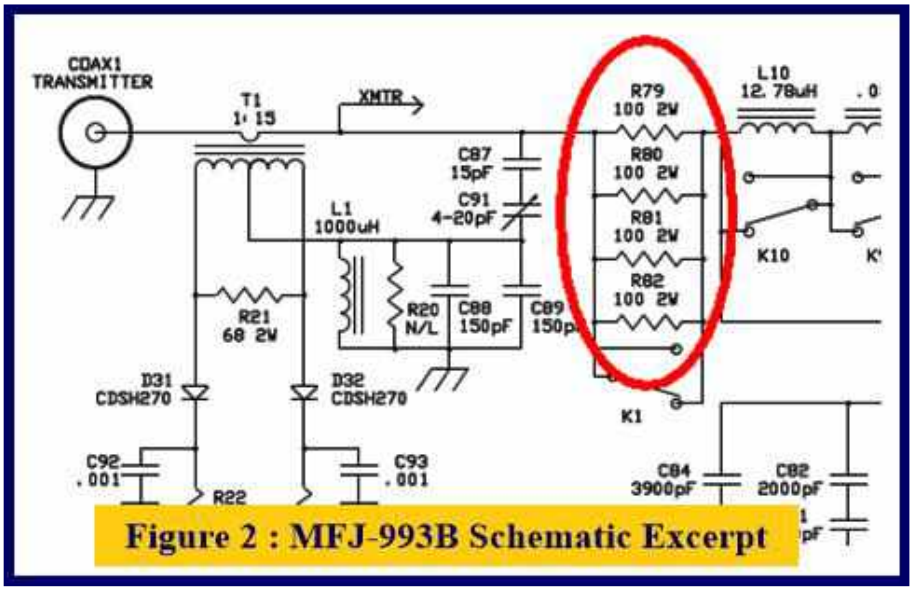


**Figure 2 : MFJ-993B Schematic Excerpt**

With time and use, these pop rivets work their way loose, either through stretching or wear - most likely through stretching. This, of course, leaves the connector loose on the panel and without a secure ground connection. That was the condition in which I found the coaxial connectors on this tuner.

Another issue, though completely trivial in nature and very easy to repair, was the loose grounding (earthing) stud on the rear panel of the tuner. This stud is, in actuality, a Phillips pan head machine screw that is inserted from the inside of the rear panel and extends through the panel, secured in place by a KEPS nut. For those who may be unfamiliar with the term, a KEPS nut is a hex nut that has a captive swiveling externally-toothed lock washer attached to it. If properly tightened upon installation, this nut will not ordinarily work its way loose, which tells me that the nut was most likely not tightened correctly when it was initially installed. Mark this one up as another factory failure.

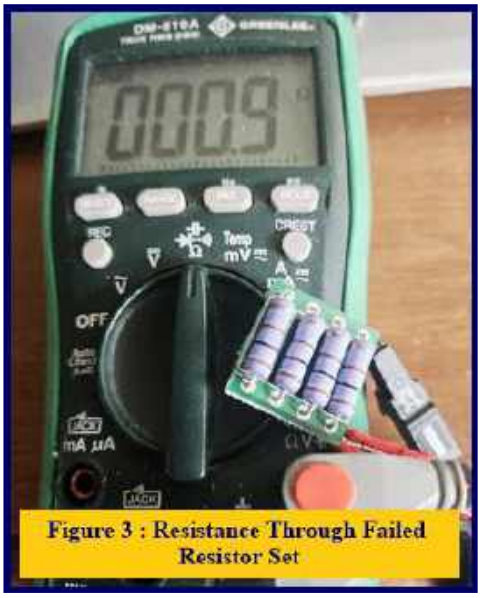


**Figure 3 : Resistance Through Failed Resistor Set**

There were two other problems noted with this unit, one of which is actually tied into the other. The two issues were the failure of a set of parallel resistors on a small daughterboard, and the typical lead-free solder joint failures that we see so often. Let's talk about the resistor failures first.

Directly in line with the input signal path from the transmitter is a set of four parallel resistors. In the schematic **(Figure 2),** they are indicated as resistors R79, R80, R81, and R82. In reality, the unit mainboard has the location of these resistors identified as R78. What is installed there is a small daughterboard that simply holds the four 2W 100Ω 5% resistors connected in parallel. This connection method yields an 8W 25Ω resistance at that point in the circuit. Once again, some of you may recall another earlier ***Repair Bench*** article wherein I described the repair of an MFJ-998RT remote automatic antenna tuner unit. That model used a very similar scheme, and it too had failed, though not with the same failure modality as with this unit. In that case, three of the four resistors had gone open and the remaining resistor had suffered a value increase to over a thousand ohms. In this case, the net resistance across the daughterboard was a mere 0.9Ω **(See Figure 3).** Each of the resistors had failed, with two of them going open, one decreasing its value to ten ohms, and the fourth decreasing its value to about one ohm. The net result was the measured resistance of 0.9Ω - using the product over the sum equation for parallel resistances, we have the following :

$$\frac{1 \times 10}{1 + 10} = \frac{10}{11} = 0.909\overline{09}\Omega.$$

The fix for this issue was to remove the daughterboard and to replace all four resistors, of course. In removing that board, I discovered that the board's two connecting leads, basically just short wire segments, were loose in the mainboard with cracked solder joints. This effectively presented at least a partial open circuit in the signal path through the tuner. More about that later.

*At The Repair Bench - Continued on page 23*

*At The Repair Bench - Continued from page 22*

**Figure 4 : Resistance After Repair**

I would have preferred to replace the resistors with 1% tolerance devices, if they had been in stock in my parts inventory. The 1% tolerance would have presented a resistance range from 24.75Ω to 25.25Ω, very close to the schematic value of 25Ω for the parallel set. Instead, I used 5% tolerance 2W resistors as the manufacturer had done in building the unit. This left us with a resistance range of 23.75Ω to 26.25Ω. The actual measured resistance post-replacement was 24.5Ω **(See Figure 4).**

The MFJ-993B IntelliTuner is an automatic antenna tuner, and as such, it switches the various inductances and capacitances into and out of the circuit by use of a set of relays. There are eight relays for the inductors, and another eight relays for the capacitor banks. The basic circuit **(See Figure 5)** is an ***"L"***, with series inductors and shunt capacitors. This is an important point, as we will see shortly.

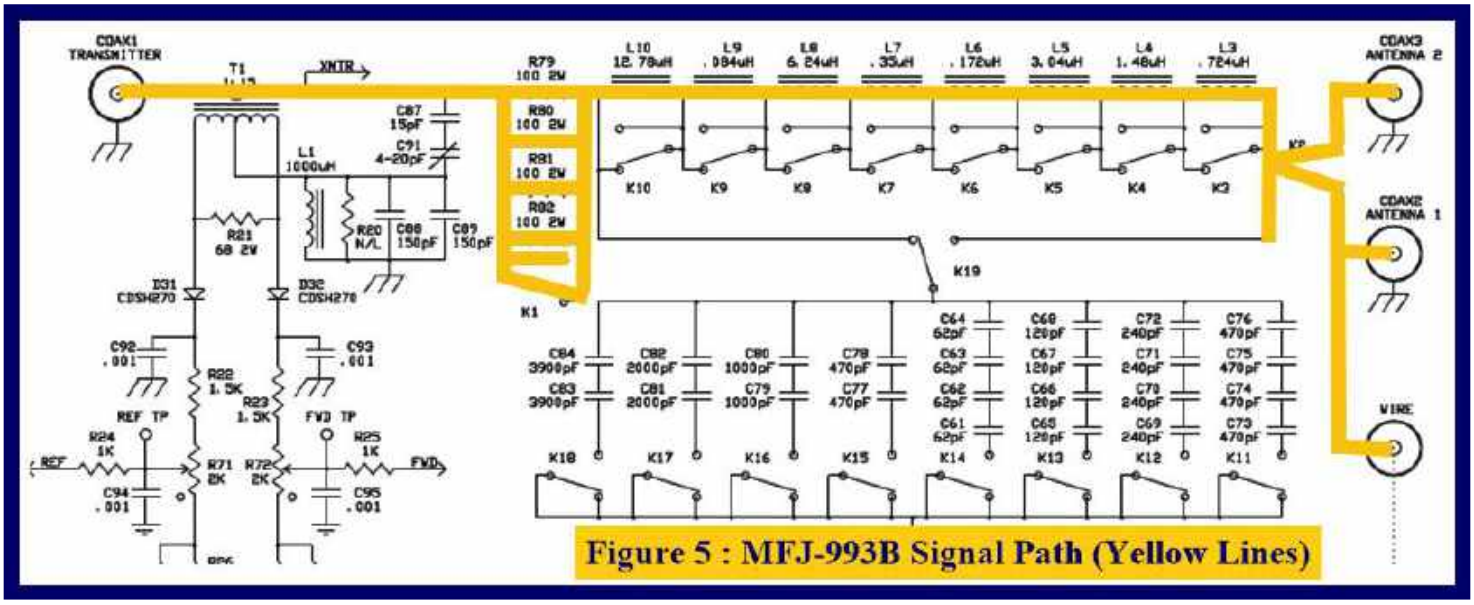


**Figure 5 : MFJ-993B Signal Path (Yellow Lines)**

In examining the unit mainboard, I found several locations where there were open or partially open (resistive) solder joints. These were ***all*** directly in the signal path, in the inductor mountings or in the associated relay connections. This brings us to a discussion of the problems related to lead-free solder joints.

The RoHS rules in Europe and Asia require that all consumer-grade electronic products be assembled with lead-free solder. ***"RoHS"*** is an acronym for ***Restriction of Hazardous Substances***, which is a set of regulations or guidelines designed to limit the use of many hazardous substances (hazardous materials or ***hazmat*** in the USA), of which lead is just one of the many regulated materials. However, lead is the subject in which we are interested right now.

It is not by accident that the use of lead-free solder is prohibited in mission-critical applications such as aviation or transportation applications, military applications, and medical and life-support applications. This is because lead-free solder joints ***will fail with time***. The failure is largely due to shrinking of the alloy over time, causing it to pull away from the points to which it is welded. The larger or more substantial a solder joint is, the more it is affected by this shrinkage problem.

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*At The Repair Bench - Continued from page 23*

Vibration exacerbates the issue, hastening the failure of the joints. Heat - or more correctly repeated thermal changes - also speeds up the process.

While the relay pins are all relatively small by comparison, the leads of the inductors used in this unit are quite substantial, forming rather large solder joints where they are soldered to the printed circuit board (PCB). Several of these inductor joints had failed, two of them (both ends of the same toroidal inductor) having gone completely open, while others were partial failures. The partial failures result in increased resistance in the solder joint. Ideally, the resistance of a proper solder joint will be nil, or as close to nil as to be unmeasurable for all practical purposes.

I use several methods to determine which solder joints, if any, have failed. First of all, I examine the joints visually, under bright light and with a good strong magnifier. Another method is to pour some 99.9% isopropyl alcohol (IPA) on the PCB and look to see where it may seep through the board. I also use the ***"feel"*** technique. In this process, I place a fingertip directly on a joint, pressing down on it against the PCB. Then, I gently attempt to wiggle the component on whose solder joint I am pressing. If any movement is felt, the joint has failed. Finally, I measure the resistance through any suspected failure points. For this, a milli-ohmmeter is required, as the resistance will be very low and the resistance of the ohmmeter test leads of a standard ohmmeter can produce erroneous readings. For this job, I use my Æscel 20218 milli-ohmmeter, which uses a Kelvin lead system. The Kelvin lead system is a methodology that uses four wires in the test leads, and effectively removes the test lead resistance from the measured and reported value, resulting in a true ***"zero ohm"*** point at the test lead alligator clips. This means that extremely low resistance values can be measured accurately, making it ideal for this task.

In some cases, I may need to remove a bit of solder mask from a trace nearby to the joint under test. I then measure the resistance from the component lead to the exposed trace. Any resistance in excess of a couple of milli-ohms is cause for a reflow of the joint. Lead-free joints have higher resistivity than otherwise equivalent leaded solder joints will have, but should still be no more than a couple of milli-ohms. Bear in mind that this type of measurement cannot be made with any standard ohmmeter. However, if such a measurement is attempted with a standard ohmmeter, and if any resistance ***is*** indicated, the joint will very obviously be in a failed condition. If solder mask was removed for the test measurement, I will re-coat that area with brush-on solder mask afterwards.

Repair of any failed lead-free solder joints is best done using rosin-core solder of a eutectic 63%/37% tin/lead alloy. I typically start out by adding the leaded solder to the joint to dilute the lead-free solder, and then remove the mix using either some solder braid or my vacuum de-solder tool. Then I re-solder the joint with the lead-alloy solder to finish the joint. This is the process that I used on this PCB. As a preventive measure against future failures, I re-flowed ***all*** of the inductor joints as well as all of the relay solder points, in both the inductor relay field and the capacitor bank field.

Now… back to the key point of the tuner failures. Remember that I said that the basic circuit **(Figure 5)** is an ***"L"*** circuit? This design places the inductors directly in the signal path, which means that any open circuit in the inductor solder joints creates a break in the signal path. That in turn means that the radio is operating without any load on its output side when the inductor or relay with the open circuit is switched into the circuit. This is, of course, directly responsible for the failure of the radio that was experienced.

While none of these repairs were difficult or were complex, each of them was undoubtedly necessary. Some of the problems could have been prevented with better design and build processes. The greatest problem though, is one that is caused by well-meaning rules and regulations. The conditions created thereby have created a well-known and predictable failure modality that all amateur radio equipment will, at some point in time, experience.

***At The Repair Bench - Continued on page 25***

*At The Repair Bench - Continued from page 24*

The best that any ham can do is to proactively and in a prophylactive manner reflow the larger solder joints in the ancillary equipment through which the radio power output must pass. This means such devices as antenna tuners, SWR meters, RF amplifiers, and so forth. While ***any*** lead-free solder joints can fail, it is far more common for the larger joints to fail, which occurs quite regularly with high-current circuit paths. Remember that this can, and does, include the incoming DC power supply connections as well as the high-power RF output circuits.

All things considered, this was a basic repair, and one that could have been prevented with a bit of forward-looking preventive activity. Nonetheless, it is the bread-and-butter of what I do. As such, this is one that could easily be undertaken by almost any ham out there, including ***you***. All that it takes is some attention to detail.

***See you next month!***

**Gloucester County Amateur Radio Club**
**YouTube Channel**
**https://www.youtube.com/@W2MMD**

**What's happening in the ARRL Southern New Jersey Section??**
**Subscribe to the ARRL SNJ Section Groups.IO**
**https://groups.io/g/ARRLSouthernNewJerseySection**

**GCARC VE Team : 2025 License Exam Monthly Summary**

| | Technician Class | | General Class | | Amateur Extra Class | |
|---|---|---|---|---|---|---|
| | Monthly | YTD | Monthly | YTD | Monthly | YTD |
| January | 0 | 0 | 0 | 0 | 0 | 0 |
| February | 2 | 2 | 0 | 0 | 1 | 1 |
| March | 1 | 3 | 2 | 2 | 0 | 1 |
| April | 0 | 3 | 0 | 2 | 1 | 2 |
| May | 1 | 4 | 1 | 3 | 1 | 3 |
| June | 4 | 8 | 3 | 6 | 0 | 3 |
| July | 3 | 11 | 1 | 7 | 0 | 3 |
| August | 4 | 15 | 2 | 9 | 0 | 3 |
| September | 4 | 19 | 4 | 13 | 0 | 3 |
| October | 2 | 21 | 0 | 13 | 0 | 3 |
| November | 0 | 21 | 0 | 13 | 0 | 3 |
| December | 2 | 23 | 1 | 14 | 3 | 6 |

# Revolutionary War Site POTA Event

**By Stan Slachetka WA2JRZ - stanplans@gmail.com**

As you are probably aware, this year is the 250th anniversary of the signing of the ***Declaration of Independence***. To commemorate the anniversary of our nation's founding, GCARC is organizing a statewide New Jersey Revolutionary War Site Park on the Air (POTA) event in 2026. The goal will be to activate state and national parks in New Jersey with a Revolutionary War connection over the course of the year.

Some of the POTA sites in New Jersey that are obvious candidates for a Revolutionary War related POTA activation include :

- Morristown National Park
- Liberty State Park
- Monmouth Battlefield State Park
- Princeton Battlefield State Park
- Washington Crossing State Park
- Washington-Rochambeau Revolutionary Route National Historic Trail
- Palisades Interstate State Park, which includes Fort Lee

I am certain that there are others that have some connection to the Revolutionary War. With a bit of research and personal knowledge, we can come up with a comprehensive list. Here is a great website and starting point in doing research on Revolutionary War sites in New Jersey : **https://www.revolutionarywarnewjersey.com**
**Revolutionary War New Jersey | Guide to New Jersey Revolutionary War Sites| New Jersey Historic Sites**

One thing to consider is that not every Revolutionary War site qualifies for POTA. For example, the Red Bank Battlefield Park in National Park, NJ, is a county park and not on the POTA list.

If you are new to Parks on the Air and want to learn more, you can get information about **POTA at (https://parksontheair.com)** Parks On The Air program for amateur radio. You can also purchase a copy of the ARRL's excellent book on POTA. Titled appropriately **The Parks on the Air Book**, you can purchase a copy at the League's website (**https://home.arrl.org/action/Store/Product-Details/productId/2013464221**) at The Parks on the Air Book or at other online sources or ham radio stores. There are also many interesting YouTube videos online that highlight POTA activations.

Some considerations in how we will be organizing this event :

1. This will be a year long event that will consist of a variety of individual park activations that will take place throughout the year. Once we finalize the list of parks, we will set up and announce the dates and times for the various activations.
2. We will be either doing this solely as a GCARC initiative or reaching out to other ham radio clubs in New Jersey and making this an interclub event.
3. We will be contacting ARRL and the national POTA organization to let them know what we have planned.
4. We will be checking to see if there are any special events planned at these parks and time our POTA activations to either avoid conflicts or garner more publicity.

***Revolutionary War POTA Event - Continued on page 27***

*Revolutionary War POTA Event - Continued from page 26*

5. This could also be a good STEM event, getting the students to participate in a POTA activation and learn about the Revolutionary War in New Jersey.
6. We will be reaching out to the respective parks and possibly link up with a park guide, teacher, author, or a representative from a reenactment group to discuss the importance of the site in the Revolution.
7. We are exploring the preparation of a special event QSL card or certificate for the POTA "hunters" who contact us during the activations, with a recognition for hunters that contact all the POTA sites we activate.

I recently had the chance to connect with ***Sarah Cureton***, Executive Director of ***RevolutionNJ*** **(https://www.revnj.org)**, and ***Mike Keeler***, Communications Manager of the ***Crossroads of the American Revolution Association*** **(https://revolutionarynj.org)**.

As described on their website, RevolutionNJ is a partnership between the New Jersey Historical Commission (NJHC), a division of the New Jersey Department of State, and the nonprofit Crossroads of the American Revolution Association to plan the commemoration of the 250th anniversary of the American Revolution in New Jersey.

There is a lot of interesting information about New Jersey's role in the Revolution, historic Revolutionary war sites in New Jersey, and related resources, including books, videos and audio tours and apps, at both websites.

I explained that we were having discussions about organizing a year long POTA event at various state and national parks in New Jersey that have a connection to the American Revolution. I explained a bit about POTA, what we do as hams, and how we would activate a park. I also mentioned that we might be coordinating our efforts with other radio clubs in the state.

They were very excited and intrigued about the opportunity to use our POTA activations to further publicize the role of New Jersey in the Revolution. They were willing to help us with advice and contacts with the various non-profit organizations that run the parks and historic sites. I told them that we had not yet decided if we were moving forward with this idea and which parks were proposing to activate, but that I would reach out to them once I had more information.

This is going to be a fun year-long event for the Club and a great way to get Club Members involved in POTA and learn more about the important role that New Jersey played in the American Revolution. It also will be a high-profile activity that could get GCARC a lot of recognition.

It also will take a reasonable amount of work to plan, organize, and implement. We are particularly looking for members that have experience in POTA activations to serve on our event committee, but everyone is welcome to participate. If you are interested in helping organize the event or are simply interested in participating in any of the POTA activations please contact me at ***stanplans@gmail.com*** or texting or calling at my cell phone number listed in the Club roster. You can also connect with me at an upcoming Club meeting.

**There is a new website for the Gloucester County Amateur Radio Club Volunteer Examiner Team. Everything you need to know about getting a new or upgrading your Amateur Radio license can be found on this website. Pass It Around!**

**https://veteam.w2mmd.org**

# Amateur Radio Emergency Services - January 2026 Resources - News - Updates

**By Bob Keogh KD2NEC - kd2nec@qsl.net**
**Gloucester County Emergency Coordinator**

This is the first segment of the ***"ARES Plan",*** revised in July 2025. You can read the entire plan on the **ARRL ARES website : https://www.arrl.org/ares**

## ARES Expertise and Capability

**Expertise**
Amateur Radio operators ***("hams")*** possess unique skills. While a ham's license allows the operation of radio equipment on a wide range of frequencies with varying propagation conditions, hams also are capable of setting up field stations and portable antennas and using non-conventional means of getting a message through when other systems are overloaded or have failed.

These skill sets are created and improved by the local **ARES (Amateur Radio Emergency Service)** group through thorough training both formal and informal, and often in conjunction with local agencies where the team can meet agency personnel with whom they can expect to be operating during a true emergency. This advance effort is a strong contributor to developing mutual trust and understanding among the key individuals managing any emergency operation and should be exercised at every opportunity.

**Skills and Capabilities**
ARES groups have actively engaged in the following steps so that they have the ability to perform certain actions and meet their objectives. Further, a goal of the ARES program is to ensure that program participants continue to improve and develop additional capabilities for serving the public directly or in support of the needs of partners :

- Net operations and traffic passing provide experience in on-the-air operating, including net procedures and routines that are easily learned and adopted. Experience resulting from regular net participation ensures that established procedures and routines for net participation become rote practices for participants. The skills involved in copying transmissions subject to severe noise levels or interference come only through the actual experience of operating under severe conditions.
- Effective exercises offer scenarios to practice for hazards and threats. Having an established written policy relating to the most likely emergency scenarios allows ARES participants to understand the procedures for activating for a given situation. Severe weather events may be quite different from a wildfire, for example, requiring contact with different agencies and different skill sets from ARES participants. A well-written emergency communications plan greatly simplifies activation procedures and ensures that smaller items are not inadvertently overlooked.
- Emergency and disaster response provides experience with actual pressures and changing requirements found in such environments. Having the opportunity to participate in emergency or disaster response offers the ARES member valuable lessons and experiences. Therefore, it is important for those involved in the response to participate in the After-Action Reports (AAR) and debriefing process, so that all participants can learn from those who have operated in emergency conditions. Careful attention to details and retention of notes is an important part of completing this important educational task.
- Various available field resources for communicating, such as VHF, UHF, HF, repeaters, accepted simplex frequencies, and local/regional HF networks.

***SNJ Section ARES Update - Continued on page 29***

*SNJ Section ARES Update - Continued from page 28*

**Multi-Discipline Capabilities and Cooperation**
ARES members and groups are encouraged to work with other like-minded individuals or groups to support their community in times of crisis. This includes planning and training as well as developing relationships and building a network of resources able to assist in times of need. This may include **Community Emergency Response Teams (CERT)** or other **Voluntary Organizations Active in Disaster (VOAD)** in your area. ARRL is a National VOAD member and the resources and relationship building opportunities are very important. We encourage ARES groups to be involved at the local level with any local VOAD that may be active.

ARES Groups are also encouraged to work with other people or groups interested in Emergency Communications. GMRS operators have increased in numbers and capabilities and could provide a valuable resource during times of crisis or in support of public services events. GMRS repeaters are common around the country and may fill gaps in areas where a ham repeater may not have adequate coverage. Some communities also have CB groups who may be a resource in supporting EmComm. There is also a growing trend in community groups and neighborhood groups that may include FRS radios and operators. Seek out any opportunity to work with any of these groups to provide assets when needed.

If you have any questions or would like to become an ARES member, please reach out to me.

## ARES Resources (Updated as of November 2024)

**ARRL ARES Registration Form : https://bit.ly/3Ae2pCf**
**Download the ARES Manual [PDF] : https://bit.ly/3iUhJLQ**
**ARES Field Resources Manual [PDF] : https://bit.ly/3QT4PtY**
**ARES Standardized Training Plan Task Book July 2024 Ver. 3.0 [Fillable PDF] : https://bit.ly/4dToEes**
**ARES Standardized Training Plan Task Book July 2024 [Word] : https://bit.ly/4heLXSU**
**ARRL ARES Plan July 2025 : https://bit.ly/4pOZwwl**
**ARES Group Registration : http://bit.ly/3XodGpX**
**ARRL Emergency Communications Training : http://bit.ly/3J2gMMf**
**FEMA 2023 National Preparedness Report : https://bit.ly/3YrPWnY**
**Southern New Jersey Section Emergency Operations Plan 2023.PDF : https://bit.ly/3YqMdHb**
**ARRL ARES Monthly Newsletters : https://bit.ly/408OV5d**

**The Amateur Radio Emergency Service® (ARES) consists of licensed amateurs who have voluntarily registered their qualifications and equipment, with their local ARES leadership, for communications duty in the public service when disaster strikes. Every licensed amateur, regardless of membership in ARRL or any other local or national organization is eligible to apply for membership in ARES. Training may be required or desired to participate fully in ARES. Please inquire at the local level for specific information. Because ARES is an amateur radio program, only licensed radio amateurs are eligible for membership. The possession of emergency-powered equipment is desirable but is not a requirement for membership.**

**If you are interested in learning more about the Gloucester County ARES Program or becoming an ARES member, please contact Bob Keogh (KD2NEC@QSL.NET)**

# Club Member DMR IDs

| Club Member | DMR ID |
|---|---|
| **W2MMD Clubhouse** | **3198604** |
| Lance Appel KE2UC | 3200487 |
| Joshua Boylan KE2FSC | 3216140 |
| Steven Broomhead KB2RTZ | 3218247 |
| Alex Calabrese WA2ADS | 3100583 |
| Chuck Capasso WB2PGE | 3169781 |
| Matthew Carango N3QB | 3169432 |
| Todd Cecilio KA2YNT | 3169458 |
| Anthony Cerami N2OAC | 3202759 |
| Mark Clark N3QMJ | 3102110 |
| Norm Coltri K2NRC | 3183851 |
| Holden Correia-Fisher KD2JPV | 3104911 |
| Mike Covaleski N2MMC | 3134855 |
| Walter Coward WX2E | 3166863 |
| Doug Dersch KD2VQA | 3193630 |
| Thomas Distelcamp Sr KC2GYC | 3110869 |
| Glenn Dougherty N2YIO | 3161836 |
| Adam Duncan W3DUN | 3202691 |
| Herb Dyer KT2Y | 3134907 |
| Harry Elwell AD5TT | 3128498 |
| Misael Fernandez Jr KE2EBL | 3214756 |
| | |
| James Foster W3JNF | 3142117 |
| Karl Frank W2KBF | 3146716 |
| Joseph Gadoury N2JJG (KE2AKT) | 3196520 |
| Glen Guenther KE2BUO | 3202079 |
| Melissa Guenther KE2BWZ | 3202496 |
| Gary Hewitt N2WHV | 3134654 |
| Paul Kaplan N2FOB | 3134796 |
| Chuck Lanard KD2EIB | 3134298 |
| Darren Malone KD2ALQ | 3215227 |
| Dean Marzocca N2TNN | 3206232 |

| Club Member | DMR ID |
|---|---|
| Gary Mirkin WA3SVW | 3165494 |
| Bill McCourt WF1L | 3152173 |
| Scott McNutt N3ADP | 3189434 |
| John Murrow KD2NHK | 1134122 |
| John Newman WB4YLM | 3213273 |
| Phil Nunzio WA3RGY | 3134336 |
| John O'Connell K2QA | 3110610 |
| Robert Pantazes W2ARP | 3157208 |
| Sheldon Parker K2MEN | 3214037 |
| Jonathan Pearce WB2MNF | 3163415 |
| Michael Pecorini K2MRP | 3132996 |
| Michael Pentimall KC3VTF | 3203601 |
| John Price III KD2QYC | 3123583 |
| Chris Prioli AD2CS | 3195449 |
| Nicholas Reigel KE2DCD | 3128983 |
| Michael Resnick N2WOQ | 3215856 |
| Frank Romeo N3PUU | 3134935 |
| Terry Rossi N2LQH | 3183681 |
| Len Rust III W2LJR | 3186225 |
| Len Rust IV K2LJR | 3196243 |
| Dave Sheppard W2PAX | 3112666 |
| Cory Sickles WA3UVV | 1142052 |
| James Simeone KC2AOF | 3134848 |
| Stan Slachetka WA2JRZ | 3213904 |
| Court Smith KD2SPJ | 3186243 |
| Jackson Snyder AI2D | 3164371 |
| Rich Subers W2RHS | 3204316 |
| David Swartout KC3TGB | 3198155 |
| Brett Waller K2BKW (KC2UXQ) | 3134261 |
| Matt Wilson K2MFW | 3134607 |
| Bill Wood KD2OSJ | 3197459 |
| Jim Wright N2GXJ | 3215168 |
| John Zaruba Jr K2ZA | 3134331 |
| New Entries As Of 12/18/2025 | |

**For more information, DMR links, and W2LJR's DMR presentations, go to :**
**https://gloucestercountyarc.weebly.com/dmr.html**

## DMR Configuration Sequence

1. **Obtain and Configure DMR ID :**
   - **https://www.radioid.net**
2. **Download Contact List :**
   - **http://www.dmrcontacts.com**
3. **Identify Repeater or Hotspot :**
   - **https://www.repeaterbook.com**
4. **Define Talk Groups**
   - **Numerical ID**
   - **Text Name**

**https://brandmeister.network/?page=talkgroups**

5. **Create Channel**
   - **Select Number**
   - **Assign Name**
   - **Select DMR ID**
   - **Assign Frequency**
     - **Transmit**
     - **Receive**
     - **Bandwidth**
   - **Power**
   - **DMR Mode (Simplex/Repeater)**
   - **TX Permit (Channel Free)**
   - **Assign Talk Group**
   - **Assign Color Code**
     - **Agreed Upon with Other Users**
   - **Assign Time Slot**
   - **Agreed Upon with Other Users**

6. **Create Zone**
7. **Add Channels to Zones**
8. **Configure Features**
9. **Upload Code Plug**
10. **Upload Contact List**

**If you recently changed your callsign, contact idteam@dmr-marc.net to have your DMR ID transferred to your new callsign.**

## 8th Annual ARRL SNJ Section Convention

*Presented By The*

**Gloucester County Amateur Radio Club**
**W2MMD**

*Celebrating Our 67th Year*

HamFest.W2MMD.org

**Open To The Public At 8:00 AM : *Rain or Shine***

**48th Annual HamFest : Sunday, August 30, 2026**

# ARRL Field Day 2026
# Saturday, June 27, 2026 - Sunday, June 28, 2026

# Woodruff Middle School STEM Club Balloon Launch Highlights

**Courier Post Newspaper Article : [https://bit.ly/49xBDnb](https://bit.ly/49xBDnb)**

**Comments from around the South Jersey area :**

- Kudos to Section Youth Coordinator Angela Metzger KE2DRJ, and the Gloucester County ARC for their recent STEM activities involving amateur radio.
  **Ron Fish KX1W - Southern New Jersey Section Manager**

- Congratulations to Angela and her students for their accomplishment. Angela mentoring and the student's interest in the hobby together makes it happen.
  73
  **Tobi Massano AD2CD**

- Congrats Jon and Angela and all those who participated. Great press coverage too!
  73
  **Rick Lawn W2JAZ - President, South Jersey Radio Association**

Digi-Key CORPORATION

**Online Conversion Calculators By DigiKey**

**[https://www.digikey.com/en/resources/online-conversion-calculators](https://www.digikey.com/en/resources/online-conversion-calculators)**

# PSK31? PSKFEST : Friday, January 2, 2026

**By Jim Wright N2GXJ**

There actually are other digital modes besides FT8. We just don't have that many opportunities to try them these days. Some, like PSK31, are useful to gain some experience with, in that they offer the ability for keyboard-to-keyboard over-the-air typing conversations and information transfer. There's an opportunity to gain some on-air experience with this mode during ***"PSKFEST"***, which begins Friday evening January 2 at 7pm local (0000 UTC Jan 3). Look for the majority of activity to be on 14.070 MHz.

PSK31 was particularly popular on HF, starting with its introduction in December of 1998. PSK31 is named for its method of changing the Phase Shift (PSK) of an audio tone to send digital data, combined with a data rate of approximately 31 bits per second. With PSK (phase shift keying), instead of changing frequency (FSK) or amplitude (ASK), it shifts the phase of the signal to represent 1s and 0s, providing excellent weak-signal performance. The baud rate was chosen as a comfortable speed for keyboard-to-keyboard chat, roughly 50 words per minute, and is easily derived from standard computer sound card sampling rates. The resulting narrow bandwidth is key to its efficiency. The ~31 Hz bandwidth allows many conversations in a small slice of radio spectrum, making it great for weak-signal chat.

I find PSK31 is particularly interesting in that it uses a technique called varicode to encode the characters you are transmitting. Some aspects of varicode as used in PSK31 include :

- **Variable length character encoding :** Common characters use fewer bits, rare ones use more, optimizing data transmission.
- **Efficiency :** Lowercase letters have shorter codes than uppercase (e.g., 'e' is 11, 'E' is 1110111), making typing lowercase faster and more efficient.
- **Self-synchronizing bit stream :** The use of '00' (or more zeros) as a gap between characters ensures the receiver can find character boundaries, even if it loses sync.
- **Structure in the encoding :** Codes start and end with '1' and never contain '00' internally, making '00' a reliable delimiter.
- **BPSK Modulation :** 1s and 0s in the Varicode stream cause phase shifts in the audio carrier signal (BPSK), hence the mode's name.

Never had a chance to try PSK31 before? Well, here's your chance. It's time for the annual PODXS070 club's PSKFEST! Two things you'll want to do before this event. First, you'll want to get some software that can do the PSK31 encoding and decoding with your radio. A common free choice is **FLDIGI (https://sourceforge.net/projects/fldigi/files/fldigi)**, though there are other choices, including **DXLabs suite (https://www.dxlabsuite.com)** (also free), **HRD/DM780 (https://www.hamradiodeluxe.com)** (free trial), and some others. Most have a wide assortment of videos on YouTube to help you get setup and started. Second, you'll want to check out the **PODXS070** web site to read more about the event, which you can do at **https://www.podxs070.com**

Wondering where the 070 in the podxs070 name comes from? It comes from the common frequency used for PSK31, which is 14.070 MHz. That's where you're most likely to find activity during the PSKFEST. The next step is up to you.

**Perhaps I'll catch you on the air Friday night, Jan 2?**

# CyberBricks

**By Len Rust W2LJR**

Some of you may know that I travel a lot for work, and while sitting in hotels I get bored. To keep myself occupied, I watch YouTube videos. Most of the videos I watch are ham radio or electronics related. One of the videos I stumbled upon was for a product called CyberBricks, and it really sparked my interest. **https://www.youtube.com/watch?v=YLbTOZfdlnM&t=151s**

CyberBricks are modular microcontrollers and electronic components sold by a company called Maker World, which is part of Bamboo Labs. Here is a link to their website : **https://makerworld.com/en/cyberbrick**

They sell the components as kits or individually. The kits contain all the parts necessary to build an assortment of pre-designed radio-controlled projects, or you can design your own. These parts include transmitters, receivers, motors, servos, LEDs, and gears. They also provide the screws, magnets, string, sand, even the lubrication for the gears.

For the pre-designed projects, you can download .3mf files which contain all the non-electronic parts you need to build the project. You simply print them on a 3D-printer. They are optimized to print on a Bamboo Labs printer of course, but they printed beautifully on my Qidi Tech Q1 Pro. They pretty much use the same slicer program.

**Photos above copied from the Maker World website**

All the parts I printed were extremely well designed and detailed. They all fit together perfectly.

Other than that, all you need are a few simple hand tools, a few AAA batteries, and some CA glue. No soldering is required.

There are also some projects designed by other makers, similar to Thingiverse and Printables, which you can get to from the Maker World website.

The instructions are well written and very detailed, which makes them great for younger makers. The assembly is fun and easy. It does take a few hours to build though, not including the time it takes to print the parts, so it's a great project for a rainy weekend.

I decide to start with their Ultimate Hardware Kit which contains enough parts for two models and two controllers. I chose to build the forklift and dump truck.

The dump truck, in addition to driving forward and backwards and turning left and right, has working headlight and taillights. It even has a working rear differential.

The forklift has flexible (TPU) caterpillar tracks, headlights, and working forks.

They really put a lot of thought into these.

*CyberBricks - Continued on page 35*

*CyberBricks - Continued from page 34*

They even have .3mf and .stl files you can download to print pallets and oil drums, so you can load them into the back of truck with the forklift.

Assembly is very simple. The electronic components all connect using JST connectors, and just about everything else is assembled using the provided screws. There are some things that need to be glued, but they are the exception.

The code for the transmitters and receivers is pre-written, so all you have to do is upload it from an APP on your phone via Bluetooth, but if you like to do you own programming, you can do that as well using MicroPython.

I really had a lot of fun building these. I was very impressed with the quality of the 3D prints and the instructions. It was time well spent. While I do not see myself using these after I am done building them, I am sure my grandson will have fun with them.

# 2024-2028 Element 4 Amateur Extra Class License Question Quiz

This month we finish up with Subelement E4 Amateur Practices (5 exam questions - 5 groups).
(Answers on Last Page)

**E4E01**
**What problem can occur when using an automatic notch filter (ANF) to remove interfering carriers while receiving CW signals?**
A. Removal of the CW signal as well as the interfering carrier
B. Any nearby signal passing through the DSP system will overwhelm the desired signal
C. Excessive ringing
D. All these choices are correct

**E4E02**
**Which of the following types of noise can often be reduced by a digital noise reduction?**
A. Broadband white noise
B. Ignition noise
C. Power line noise
D. All these choices are correct

**E4E03**
**Which of the following types of noise are removed by a noise blanker?**
A. Broadband white noise
B. Impulse noise
C. Hum and buzz
D. All these choices are correct

**E4E04**
**How can conducted noise from an automobile battery charging system be suppressed?**
A. By installing filter capacitors in series with the alternator leads
B. By installing a noise suppression resistor and a blocking capacitor at the battery
C. By installing a high-pass filter in series with the radio's power lead and a low-pass filter in parallel with the antenna feed line
D. By installing ferrite chokes on the charging system leads

**E4E05**
**What is used to suppress radio frequency interference from a line-driven AC motor?**
A. A high-pass filter in series with the motor's power leads
B. A brute-force AC-line filter in series with the motor's power leads
C. A bypass capacitor in series with the motor's field winding
D. A bypass choke in parallel with the motor's field winding

**E4E06**
**What type of electrical interference can be caused by computer network equipment?**
A. A loud AC hum in the audio output of your station's receiver
B. A clicking noise at intervals of a few seconds
C. The appearance of unstable modulated or unmodulated signals at specific frequencies
D. A whining-type noise that continually pulses off and on

*Element 4 Amateur Extra Class Quiz - Continued on page 37*

*Element 4 Amateur Extra Class Quiz - Continued from page 36*

**E4E07**
**Which of the following can cause shielded cables to radiate or receive interference?**
A. Low inductance ground connections at both ends of the shield
B. Common-mode currents on the shield and conductors
C. Use of braided shielding material
D. Tying all ground connections to a common point resulting in differential-mode currents in the shield

**E4E08**
**What current flows equally on all conductors of an unshielded multiconductor cable?**
A. Differential-mode current
B. Common-mode current
C. Reactive current only
D. Magnetically-coupled current only

**E4E09**
**What undesirable effect can occur when using a noise blanker?**
A. Received audio in the speech range might have an echo effect
B. The audio frequency bandwidth of the received signal might be compressed
C. Strong signals may be distorted and appear to cause spurious emissions
D. FM signals can no longer be demodulated

**E4E10**
**Which of the following can create intermittent loud roaring or buzzing AC line interference?**
A. Arcing contacts in a thermostatically controlled device
B. A defective doorbell or doorbell transformer inside a nearby residence
C. A malfunctioning illuminated advertising display
D. All these choices are correct

**E4E11**
**What could be the cause of local AM broadcast band signals combining to generate spurious signals on the MF or HF bands?**
A. One or more of the broadcast stations is transmitting an over-modulated signal
B. Nearby corroded metal connections are mixing and reradiating the broadcast signals
C. You are receiving skywave signals from a distant station
D. Your station receiver IF amplifier stage is overloaded

**E4E12**
**What causes interference received as a series of carriers at regular intervals across a wide frequency range?**
A. Switch-mode power supplies
B. Radar transmitters
C. Wireless security camera transmitters
D. Electric fences

*Element 4 Amateur Extra Class Quiz - Continued on page 38*

*Element 4 Amateur Extra Class Quiz - Continued from page 37*

**E4E13**
**Where should a station AC surge protector be installed?**
A. At the AC service panel
B. At an AC outlet
C. On the single point ground panel
D. On a ground rod outside the station

**E4E14**
**What is the purpose of a single point ground panel?**
A. Remove AC power in case of a short-circuit
B. Prevent common-mode transients in multi-wire systems
C. Eliminate air gaps between protected and non-protected circuits
D. Ensure all lightning protectors activate at the same time

## Volunteer Monitor Program Report - October 2025

The Volunteer Monitor (VM) Program is a joint initiative between ARRL and the FCC to enhance compliance in the Amateur Radio Service. This is the October 2025 activity report of the VM Program.

- Technician operators in Connecticut, Washington, Kansas, New York, California, and Arizona were issued advisories concerning 20-meter FT8 operation, a band on which Technicians have no privileges. A Technician operator in New York was issued an advisory for 17-meter FT8 operation, a band on which Technicians have no privileges.
- A club station in California was issued an advisory for operation with an expired license.
- Two operators in Florida were issued advisories concerning identification of their stations on 40 meters. Section 97.119(a) requires amateur stations to transmit the assigned call sign at the end of each communication and at least every 10 minutes during a communication.
- An operator in Utah received a notice of violation from the FCC for operation on 173.767 MHz, a frequency not authorized to the amateur service. An operator in Florida received a notice of violation from the FCC for broadcasting, prohibited by Section 97.113(b) of Commission rules; and for refusal to allow an inspection, in violation of Section 97.103(c). Both operators were directed to respond to the notices within 30 days with sworn statements, under penalty of perjury.
- Interference to amateur satellite operations was informally resolved through the VM program. Persistent interference to 3.868 MHz was determined to be from a foreign transmitter.
- There was one virtual club presentation about the VM Program given to the Oro Valley Amateur Radio Club in Tucson, Arizona.
- The FCC requested assistance in two cases : a public safety case near McAllen, Texas, and a case involving unlicensed operation in California.

The totals for September 2025 monitoring were 1,235 hours on HF frequencies, and 2,003 hours on VHF frequencies and above, for a total of 3,238 hours.

***Thanks to Volunteer Monitor Program Administrator Riley Hollingsworth, K4ZDH***

# From The Help Desk - January 2026

**By Chris Prioli AD2CS - chris@ad2cs.com - www.ad2cs.com**

***Note : This is an ongoing series of related articles that will each take a look at some facet of radio selection, installation, or operation as suggested by actual questions received from Club members or other amateur operators.***

***Q :*** Why are different numbers sometimes given as the dividend when calculating wire lengths for dipole antenna construction? For example, sometimes we are told to divide the frequency in megahertz into 300, or sometimes into 984, or other times we are told to use 285, or maybe 934. Other times we see values used like 150 or 492, or else we see 142, while other times we might see 467 used. None of this makes any sense. Is there an explanation for all of the different numbers we are given?

***A :*** While it may seem somewhat confusing at first, there really is a reason for it all. We must remember that while antenna length is based upon wavelength, it most often is ***not*** a full wavelength or even a full fractional wavelength. The basic equation for calculating ***wavelength***, abbreviated with the Greek letter ***lambda (λ)***, is

$$\lambda = \frac{c}{f_{MHz}}$$

where ***c*** is the speed of light in free space and $f_{MHz}$ is the frequency of the pertinent signal, given in megahertz.

When it comes to antenna design, however, we must derate ***c*** by a certain percentage due to the higher density of the material of which the antenna driven elements are constructed as compared to the ***"free space"*** density at which ***c*** is normally stated. Bear in mind that ***"free space"*** implies that the signal is propagated through a vacuum. Even transmitting a signal through air will slow it down a little bit, but not enough to worry about. However, that is not the case when we send the radio signal through a metal element. The derating percentage most often used is 5%.

The two metals most frequently used in amateur radio antenna construction are aluminum and copper. Copper has a density and therefore a volume per unit mass of about three times that of aluminum, making aluminum the material of choice for most large antenna elements. On the other hand, copper or copper-clad steel wire is most often used in wire antennas. However, when it comes to radio wave propagation, copper and aluminum have propagation characteristics that are fairly similar to each other. Further variations in the dividend value are derived from the fractional wavelength dimension at which the specific antenna element is sized. ***Table 1*** on the next page provides some common antenna element length equations and their method of derivation. When the term ***"metal"*** is used, the reference is to either copper or aluminum, interchangeably.

The decimal values in the dividends of the various table entries may be encountered as rounded whole-number values, and depending upon exactly what derate percentage is used, the values may appear as other values that are fairly close to the base value. For example, if a 5.5% derating factor is used instead of an even 5%, the dividend of 285 for the full-wave ***λ*** in free space would become 283.5, while a 4.5% derate factor would yield 286.5 as the new dividend value.

As it can now be readily seen, these equations can use a wide variety of values, but in any event, these values are intended only to produce a ***starting point*** for the final cutting and tuning of the antenna.

I hope that this has helped to shed some light on the confusion that results when we look at the various cut lengths recommended for the design and construction of your newest homebrew antenna.

***From The Help Desk - Continued on page 40***

*From The Help Desk - Continued from page 39*

**Table 1 : Antenna Element Cut Lengths**

| Equation | Derivation | Notes |
|---|---|---|
| $\lambda = \frac{300}{f_{MHz}}$ | full wavelength in free space | standard full-wave wavelength equation, providing $\lambda$ in meters |
| $\lambda = \frac{285}{f_{MHz}}$ | full wavelength in metal element | full-wave wavelength equation, providing $\lambda$ in meters, derated 5% |
| $\lambda/_2 = \frac{150}{f_{MHz}}$ | half wavelength in free space | standard half-wave wavelength equation, providing $\lambda/2$ in meters |
| $\lambda/_2 = \frac{142.5}{f_{MHz}}$ | half wavelength in metal element | half-wave wavelength equation, providing $\lambda/2$ in meters, derated 5% |
| $\lambda/_4 = \frac{75}{f_{MHz}}$ | quarter wavelength in free space | standard quarter-wave wavelength equation, providing $\lambda/4$ in meters |
| $\lambda/_4 = \frac{71.25}{f_{MHz}}$ | quarter wavelength in metal element | quarter-wave wavelength equation, providing $\lambda/4$ in meters, derated 5% |
| $\lambda = \frac{984}{f_{MHz}}$ | full wavelength in free space | standard full-wave wavelength equation, providing $\lambda$ in feet |
| $\lambda = \frac{934.8}{f_{MHz}}$ | full wavelength in metal element | full-wave wavelength equation, providing $\lambda$ in feet, derated 5% |
| $\lambda/_2 = \frac{492}{f_{MHz}}$ | half wavelength in free space | standard half-wave wavelength equation, providing $\lambda/2$ in feet |
| $\lambda/_2 = \frac{467.4}{f_{MHz}}$ | half wavelength in metal element | half-wave wavelength equation, providing $\lambda/2$ in feet, derated 5% |
| $\lambda/_4 = \frac{246}{f_{MHz}}$ | quarter wavelength in free space | standard quarter-wave wavelength equation, providing $\lambda/4$ in feet |
| $\lambda/_4 = \frac{233.7}{f_{MHz}}$ | quarter wavelength in metal element | quarter-wave wavelength equation, providing $\lambda/4$ in feet, derated 5% |

***"The big thing about being in a club and being a "Ham" is to help each other when there is a need "***
***- W2SEF***

**W2MMD**

**Facebook**

www.facebook.com/W2MMD

# Club Membership Stats - 2025 Year In Review

**We now have 267 members.**

**140 members used PayPal to renew or join.**

**We had 54 members join the Club in 2025**

***A Big THANK YOU to the new and returning members of the class of 2025!***

**We have 228 Full, 16 Life, 9 Family, 9 Associate, 4 Student, and 1 Honorary Members.**

**142 of our flock are ARRL members, 25 of which are ARRL Life Members.**

**65 members have DMR IDs.**

**We have 46 Technician Class, 89 General Class, 12 Advanced Class, and 110 Amateur Extra Class licensees in our Club.**

**The average age of our membership is 63 years old. Our youngest is 17 and our oldest 97.**

**Location Stats :**

- **The grid square with the most members is 15 from FM29kt and 14 from FM29kr.**
- **Sewell leads the way as the home of 25 members, Vineland has 18, Williamstown has 10, Mullica Hill has 9, Woodbury and Sicklerville each have 8, Bridgeton, Franklinville, and Cherry Hill each have 7.**
- **43 members live out of state :**
  - **19 in Pennsylvania**
  - **6 in Delaware**
  - **5 in Florida**
  - **3 in South Carolina**
  - **1 each in Alabama, California, Georgia, Maryland, New Hampshire, North Carolina, Ohio, Texas, Virginia, and Washington DC**
- **2 Members have alternate QTHs : Poland and Kenya**

**New Jersey QSO Party 2025**
**September 20, 2025**

**Call : NE2R**
**Operator (s) : NE2R**
**Station : NE2R**

**Class : Single Op LP**
**QTH : SNJ**
**Operating Time (hrs) : 6.5**
**Location : In State/Province**

**Summary :**

| Band | CW Qs | Ph Qs | Dig Qs |
|---|---|---|---|
| 40 : | 7 | 0 | 0 |
| 20 : | 97 | 0 | 0 |
| 15 : | 13 | 0 | 0 |
| Total : | 209 | 0 | 0 |

**Mults : 48**
**Total Score : 39,744**

**Club : Gloucester County Amateur Radio Club** **057**

# Gloucester County Amateur Radio Club
# General Membership Meeting Minutes
# Wednesday, December 03, 2025

**Meeting opened @ 1900 Hours by President Jonathan Pearce WB2MNF with the Pledge of Allegiance to the Flag**

**Attendance :**

- **In-person : 40**
- **Zoom : 19**

**Visitors :**

- **Dean Marzocca N2TNN, Vineland, NJ**
- **Caryn Sternstein**
- **CR Phillips, ZOOM**
- **Cole Bonner KE2GYA, ZOOM**

**New Members :**

- **Robert Bagienski, Pitman, NJ**
- **Brian Feasler KE2DHJ, Williamstown, NJ**
- **Scott McNutt N3ADP, Brigantine, NJ**
- **Terry Rossi N2LQH, Tabernacle, NJ**

**Announcements :**

- **Holiday Dinner 12/10/25 at the Lamp Post Diner, Clementon, NJ**
- **Hamfest 2026 ***NEW DATE*** SUNDAY, AUGUST 30, 2026 ***NEW DATE*****

**Upcoming Clubhouse Events :**

- Winter Field Day : January 24 - 25, 2026
- December 6, 2025 Tech Saturday Forum : Bandpass Filter by Chris Prioli AD2CS
- License Testing December 11, 2025 @ 7PM
- 915 MHz Yagi Antenna Build December 13, 2025 @ 9AM and 1PM
- Board of Director's Meeting December 17, 2025 @ 7PM
- Dues are due

**Member current activities :**

- Jim Wright N2GXJ reported on the results of 2025 Field Day

**Business Meeting :**

- Minutes of November 2025 business meeting as published in CrossTalk were approved by voice vote of members present.

**TREASURER'S REPORT :**

- 2025 Year to Date Income and Expense :
  - Income : $19,247.64
  - Expense : $18,086.48
  - Net : $1,161.16

***December 2025 General Membership Meeting Minutes - Continued on page 43***

Remarks :

**GLOUCESTER COUNTY AMATEUR RADIO FOUNDATION :**

- Report : **John O'Connell K2QA** reported on account balances.

**CLUBHOUSE REPORT :**

- Report : **Jon Pearce WB2MNF** provided an update on the trenching for the tower grounding project.

**DX AND CONTESTS :**

- Report : **Tony Starr K3TS** reported on DX and propagation as well as contests via Zoom, details published in CrossTalk
- **Jon Pearce WB2MNF** reported on the most recent EME contest.

**VE TEAM :**

- Report : **Jon Pearce WB2MNF** provided a summary of 2025 new licensees and upgrades.

**EDUCATION COMMITTEE :**

- Report : **Jon Pearce WB2MNF** discussed the latest balloon launch with the Woodruff STEM club.

**MEMBERSHIP :**

- Report : **Jon Pearce WB2MNF** reported on 2025 Member statistics. 20% of the membership joined THIS YEAR. Half of Club members joined after 2021.

**OLD BUSINESS :**

- Previous GM meeting minutes as published in CrossTalk approved by voice vote of members present.
- Treasurer's report approved by voice vote of members present.

As the 2026 slate of Club officers is unopposed, the Recording Secretary casts a unanimous vote for :

- **President : Jonathan Pearce WB2MNF**
- **Vice President : Ron Block NR2B**
- **Treasurer : John O'Connell K2QA**
- **Recording Secretary : John Zaruba Jr K2ZA**
- **Corresponding Secretary : Michael Resnick N2WOQ**
- **Director (3 yr) : Chris Prioli AD2CS**
- **Director (3 yr) : James Wright N2GXJ**
- **Trustee (4 yr) : Greg Ciraula K3GC**

**PRESENTATION :**

- **"Browser-based Signal Monitoring" by Dr. Joe Jesson W2JEJ**

**Meeting adjourned @ 2000 Hours**

**Respectfully submitted,**
**John Zaruba K2ZA,**
**Recording Secretary**

# Gloucester County Amateur Radio Club
# Board of Directors Meeting Minutes
# Wednesday, December 17, 2025

**Meeting opened @ 1900 Hours by President Jonathan Pearce WB2MNF**

**Attendance :**

- **President Jon Pearce WB2MNF : Present**
- **Vice President Ron Block NR2B : Present**
- **Treasurer John O'Connell K2QA : Present**
- **Recording Secretary John Zaruba Jr K2ZA : Present**
- **Corresponding Secretary Mike Resnick N2WOQ : Present**
- **Director (2024-2026) Al Arrison KB2AYU : Present**
- Director (2024-2026) Bill Price NJ2S :
- **Director (2025-2027) Jeffrey Garth WB2ZBN : Present**
- **Director (2025-2027) Frank Romeo N3PUU : Present**
- **Director (2026-2028) Chris Prioli AD2CS : Present**
- **Director (2026-2028) James Wright N2GXJ : Present**
- Trustee (2023-2026) Sheldon Parker K2MEN :
- **Trustee (2024-2027) Len Rust W2LJR : Present**
- **Trustee (2025-2028) Earl Moore KC2NCH : Present**
- Trustee (2026-2029) Greg Ciraula K3GC :
- **Member Bruce Canino KD2LBU : Present**
- **Member Karl Frank W2KBF : Present**

**New Member Applications :**

- **Cole Bonner KE2GYA, Manahawkin, NJ**
- **Dean Marzocca N2TNN, Vineland, NJ**
- **Alexander Williams KE2HHX, Sewell, NJ**

**Treasurer's Report :**

- **Income : $20,495.60**
- **Expense : $21,025.10**
- **Net : -$529.50**

Detailed financial statements are available for member review upon request.

**Committees :**

- **Clubhouse : Al Arrison KB2AYU** reported on outdoor work and weather constraints. **Frank Romeo N3PUU** discussed progress in the VHF room furniture install.
- **Holiday Party :** Feedback and discussion of venue issues.
- **Programs : Jon Pearce WB2MNF** and **Chris Prioli AD2CS** reported on the 915 MHz Yagi build project on 12/13. January Tech Saturday will SDR radios. Meshtastic follow-up TBD in January.
- **Education : Chris Prioli AD2CS** reported on the Spring Licensing classes tentatively 4/6-6/26/26. VE Team had 43 successful candidates this year.
- Foundation : **John O'Connell K2QA** reported on the current balances.

***December 2025 Board of Directors Meeting Minutes - Continued on page 45***

*December 2025 Board of Directors Meeting Minutes - Continued from page 44*

- Foxhunt Report : **Jim Wright N2GXJ** announced the next for hunt Sunday, January 11, 2026.
- Club Nets : 40m net time changed to 1900 local.

**Old Business :**

- Previous BoD minutes approved by voice vote of Club officers present.
- Discussion of Winter Field Day on January 24-25, 2026

**New Business :**

- Treasurer's report approved by voice vote of Club officers present.
- **Club Nets :**
  - ♦ 40 meter frequency : 7.170 MHz (+/- 5 or 10 kHz) @ 1900 Hours
  - ♦ 2 meter nets : November 2025
    - ◊ Tuesday : Average 6.75 check ins
    - ◊ Thursday : Average 6.3 check ins

**Meeting adjourned @ 2012 Hours**

**Respectfully Submitted,**
**John Zaruba Jr K2ZA**
**Recording Secretary**

**New Jersey QSO Party 2025**
**September 20, 2025**

**Call : AB2E**
**Operator (s) : AB2E**
**Station : AB2E**

**Class : Single Op HP**
**QTH : Salem**
**Operating Time (hrs) : 6.5**
**Location : In State/Province**

**Summary :**

| Band | CW Qs | Ph Qs | Dig Qs |
|---|---|---|---|
| 80 : | 10 | 18 | 0 |
| 40 : | 94 | 79 | 0 |
| 20 : | 66 | 256 | 0 |
| 15 : | 2 | 9 | 0 |

**Total : 172 362 0 Mults : 66**
**Total Score : 46,596**

**Club :** **055**

**Comments :**
Callsign : AB2E
Contest : NJ QSOPARTY

| Band | Mode | QSOs | Pts | Mul | Pt/Q |
|---|---|---|---|---|---|
| 3.5 | CW | 10 | 20 | 0 | 2.0 |
| 3.5 | LSB | 18 | 18 | 0 | 1.0 |
| 7 | CW | 94 | 188 | 9 | 2.0 |
| 7 | LSB | 79 | 79 | 13 | 1.0 |
| 14 | CW | 66 | 132 | 7 | 2.0 |
| 14 | USB | 256 | 256 | 33 | 1.0 |
| 21 | CW | 2 | 4 | 2 | 2.0 |
| 21 | USB | 9 | 9 | 2 | 1.0 |
| Total | Both | 534 | 706 | 66 | 1.3 |

Score : 46,596
1 Mult = 8.1 Q's

**To Be Added To The DX HONOR ROLL or Update Your Number, Please Contact**
**Ernest Kraus KD2EAV**
**meanddelcanotc@verizon.net**

| Name/Callsign | DXCC |
|---|---|
| Bill Grim W0MHK | 352 |
| Dave Strout W2YC | 349 |
| Edward De Fonzo W2DE | 339 |
| Darrell Neron AB2E | 337 |
| Bob Pantazes W2ARP | 300 |
| Gary Castellini N2IEC | 288 |
| Vinnie Sallustio N4NYY | 277 |
| Sheldon Parker K2MEN | 275 |
| Jim Wright N2GXJ | 274 |
| John Hill W2HUV | 271 |
| Ken Denson WB2P | 248 |
| Tony Starr K3TS | 247 |
| Dennis Sandole K2SE | 231 |
| Eric Morris N2BRJ | 173 |
| Art Strong KA0WS | 165 |
| Howard Marder WA2IBZ | 160 |
| Steve Farney W2SEF | 149 |
| Phil Nunzio WA3RGY | 144 |
| Ben Johnson NE2R | 134 |
| Rich Subers W2RHS | 133 |
| Bart Kleczynski AC2PT | 124 |
| Marc Federici WM2Y | 117 |
| Chuck Capasso WB2PGE | 104 |
| Harry Strahlendorf W3DNQ | 103 |
| Jim Clark KA2OSV | 87 |
| Updated As Of 12/20/2025 | |

**New Jersey QSO Party 2025**
**September 20, 2025**

**Call : K3TS**
**Operator (s) : K3TS**
**Station : K3TS**

**Class : Single Op LP**
**QTH : WPA**
**Operating Time (hrs) : 2**
**Location : Out of State/Province**

**Summary :**

| Band | CW Qs | Ph Qs | Dig Qs | |
|---|---|---|---|---|
| 80 : | 9 | 0 | 0 | |
| 40 : | 16 | 6 | 0 | |
| 20 : | 2 | 0 | 0 | |
| Total : | 27 | 6 | 0 | Mults : 12 |

**Total Score : 1,440**

**Club : Frankford Radio Club** **056**

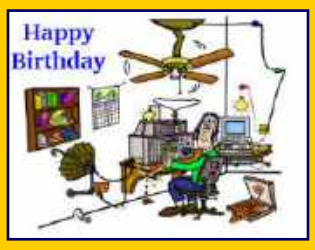
***Hmm...It's Saturday and you want to know if someone is at the Clubhouse? Why not call and find out!***

***W2MMD Clubhouse : 856-244-6914***

## January Birthdays

***Congratulations To Our Members Who Are Celebrating A Birthday This Month***

**James Alston AC2BY**
**James Archer N3ZS/5Z4FV**
**Al Arrison KB2AYU (President 1998, 2010, 2011)**
**George Badger III W3AB**
**Beth Barnish KB2EAL (President 1990)**
**Chris Ciraula KD2SBR**
**Mark Clark N3QMJ**
**John Czuba K2AEN**
**Joseph DiNovi WA2GFK (President 1986)**
**Michael Dornisch KD2IFY**
**Steve Farney W2SEF**
**Leonard Ford KE2DPS**
**Susan Frank W6SKT**
**Derrick Hollis KC3UEE**
**Beth Kraus KE2BPE**
**Ella Lee K2BNJ**
**Michael Libonati WA2ACV**
**Darrin Malone KD2ALQ**
**Harry Maloney III KE2ALG**
**Paul Marchetto W2NKJ**
**Evan McCormick III KD2NEB**
**John Murrow KD2NHK**
**Gary Reed N2QEE**
**Leonard Rust III W2LJR**
**Robert Shannon KB2GTQ**
**Michael Thompson KG4JYA**
**David Wade KD2NZS**
**Matthew Wilson K2MFW**




## In Memoriam : January Birthdays

**Jesse BiebermanW3KT**
**John Bokoles W2KI**
**Sidney Bozarth WB2YHX**
**Richard Carter WA2OLS**
**Sandra Deluca KG2MM**
**Howard Dodson K2HJD**
**Vincent Eckert**
**John Fahey WB2ONY**
**Ernest Fox K2JWN (Charter Member)**
**Robert Gibison Sr KB2YBQ**
**William Hunsinger KB2YJB**
**Louis Joseph W2LYL**
**Rev. Stanley Kloskowski WA2IPX**
**Miriam Kravitz KB2EUA**
**Robert Layton KB2COB**
**John Mullens Jr N2WSI**
**Charles Taylor W2CAN**
**Steven Pakyz W2PZX**
**Mary Petruzzi AE2Y**
**Leonard Rosen N2LR**
**Emmett Ross WA2ZND**
**Jack Sheppard N2OMB**
**Martin Stankard Jr WA2TZJ**
**Vernon Van Meter WD4IVU**

**Frank Van Turner K3JM**
**(Co-Founder, Charter Member, President 1959)**

**Henry Vandenberg N2SBV**
**Gene Wallace Jr N2IMK**

**Wayne Wood W2SUA**
**(Charter Member, President 1973)**

# CrossTalk Submissions

***This is your Club Magazine. Make use of it.***

**If you have stories or photos of your hobby that you would like to share with the Club, please do so! We will keep covering all of the GCARC events, but it is also nice to get those personal perspectives to include in every issue. Connecting through experiences is what makes the Gloucester County Amateur Radio Club a *REAL* Club.**

**All submissions, queries, comments, and editorials should be addressed to :**
**Jeff Garth WB2ZBN at djgrath1 <*at*> gmail <*dot*> com**

**Submission deadline for the February 2026 issue : Tuesday, January 20, 2026**

**Club Website www.w2mmd.org**
**Club E-Mail Reflector : GCARC <*at*> Mailman <*dot*> QTH <*dot*> Net**

# Announced DX Operations : December 2025

## www.ng3k.com/Misc/adxo.html

## From The Shack of Bill Feidt NG3K : www.ng3k.com

| January | | | | | | |
|---|---|---|---|---|---|---|
| 2026 Jan01 | 2026 Feb16 | Grenada | J38WG | LoTW | OPDX 20251025 | By WE9G fm IOTA NA-024 (FK92ef); 160-6m; mainly FT8, some CW SSB; QSL via Club Log OQRS or WE9G (B/d) |
| 2026 Jan06 | 2026 Feb06 | Benin | TY5GG | LoTW | OPDX 20251004 | By F5NVF fm Godomey, Abomey-Calavil HF; Spiderbeam, multiband dipole; QSL via F5RAV direct; operation to continue until 6 Apr 2026 |
| 2026 Jan07 | 2026 Jan15 | Palau | T8 | Home Call | DXW.Net 20251215 | By JA6KYU as T88HS, JA6EGL as T88SM, JH6OPP as T88XE fm Koror; 160-6m; CW SSB AM FM |
| 2026 Jan10 | 2026 Jan22 | Lakshadweep Is | VU7RS | M0OXO | DXW.Net 20251006 | By VU2RS (Leader) VU2ADX VU3DXA VU3GDS VU2AR EY8MM DL6KVA YT1AD R7KW DJ5IW VU2DWA fm Agatti I; 160-6m, focus on low bands; CW SSB + digital |
| 2026 Jan11 | 2026 Jan29 | Aruba | P40AA NEW | LoTW | DL4MM 20251220 | By DL4MM; HF; CW FT8 SSB; QRV for CQ 160m Contest; QSL via DL4MM or Club Log OQRS |
| 2026 Jan12 | 2026 Feb15 | San Felix & Ambrosio | XQ | M0URX | W2OR 20251023 | By remote team as TBA fm San Ambrosio I (IOTA SA-013); 160-10m; CW SSB FT8 w/ focus on CW and FT8; see Web for full QSL details |
| 2026 Jan13 | 2026 Jan21 | Sint Maarten | PJ7 | LoTW | OPDX 20251022 | By IZ2DPX as PJ7/IZ2DPX; also fm St Martin using FS/IZ2DPX /m; 60-6m; SSB FT4 FT8; 100w; vertical, dipoles; QSL via Club Log OQRS or IZ2DPX (B/d) |
| 2026 Jan15 | 2026 Feb28 | Kenya | 5Z4 NEW | LoTW | OPDX 20251223 | By OZ6ABL as 5Z4/OZ6ABL fm Watamu (LI06ap); 80-6m; CW SSB FT8 FT4; holiday style operation; QSL via OZ6ABL or Club Log OQRS |
| 2026 Jan18 | 2026 Jan24 | Maldives | 8Q7JI | LoTW | DXW.Net 20251105 | By DS1TUW fm Dhaalu Atoll; 80-10m; CW FT8; QSL via DS1TUW direct |
| 2026 Jan18 | 2026 Jan30 | Barbados | 8P9CB | LoTW | OPDX 20251101 | By WA7RAR fm Sea Cliff Cottage; 20-10m; SSB CW; QSL: Chris Billings, PO Box 1383, Shady Cove, Oregon, 97539, USA; SASE/green stamps NOT required |
| 2026 Jan19 | 2026 Jan26 | Maldives | 8Q7EL NEW | IW5ELA | DXW.Net 20251222 | By IW5ELA fm Vaavu Atoll; HF; mainly CW; holiday style operation |
| 2026 Jan20 | 2026 Feb10 | Guadeloupe | FG4KH | LoTW | OPDX 20250915 | By F1DUZ; 80-10m; SSB; QSL via F1DUZ (B/d) |
| 2026 Jan22 | 2026 Jan28 | Micronesia | V6 | Club Log OQRS | DXW.Net 20250912 | By JA1XGI as V6HUCHIDA fm Chuuk I (IOTA OC-011,QJ57wj); 160-10m; CW SSB + digital; QRV for CQ 160m CW |
| 2026 Jan22 | 2026 Mar31 | Curacao | PJ2 | LoTW | OPDX 20250908 | By W2APF as PJ2/W2APF; 80-10m; CW SSB FT8; QSL via W2APF direct |
| 2026 Jan30 | 2026 Feb03 | St Kitts & Nevis | V47JA | LoTW | W5JON 20251207 | By W5JON fm Calypso Bay; 160-6m; SSB FT8; yagi, verticals; QSL also OK via W5JON direct |

**Also for your convenience, there is a direct link to NG3K on our website. Click on the NG3K DX Page.**

## ARRL Membership Commission Program

**By Chris Prioli AD2CS - chris@ad2cs.com - www.ad2cs.com**

As some of you may already know, the ARRL has upped the ante on one of their long-standing programs, the Affiliated Club Membership Commission program. What this means to us is that we as an Affiliated Club have access to an improved revenue stream that costs us nothing but a little bit of paperwork and cooperation. The Membership Committee will handle the paperwork, but we do need the cooperation of all Club members to make this a reality.

Here is how it works. The ARRL will pay a commission to the GCARC for every new ARRL membership and for every ARRL membership renewal that is processed through the Membership Commission program. The payments are at a rate of **$5.00** for each renewal and **$20.00** for each new membership application submitted. This could equate to a sizable income for our Club if everyone cooperates.

All that you have to, as an existing ARRL member, is to renew your League membership via a renewal form that the GCARC Membership Committee will provide to you, completing the form and returning the form with the renewal payment to our Membership Committee. We will then bundle all of the applications received in a given month and submit them to the ARRL together with a special cover form competed by the Membership Committee. The ARRL will then send a check for the agreed commission amount to our Club. Renewals can be submitted as much as sixty days before expiration. If you are unsure of your expiration date, drop me an email and I can tell you when your ARRL membership expires.

As a tentative new member… and 45% of our membership does not currently belong to the ARRL… the process is similar. Our Membership Committee will provide you with a League membership application, which you will then complete and return to us together with your payment. We will then submit those applications together with the required cover form to the ARRL, who will again send a check for the commission to our Club.

If you are not currently an ARRL member, I strongly recommend that you join the League. The ARRL is our - Amateur Radio's - ONLY voice in Washington when it comes to lobbying for the hobby and protection of Amateur Radio against encroachment by other interests. We NEED to support the ARRL in order to protect our chosen hobby, and they are quite effective and successful in their efforts to protect and promote Amateur Radio.

Many of you will be renewing your ARRL memberships anyway, so why not do it through this program and let GCARC benefit a little bit from your renewal?

## NTS Resources

The National Traffic System® (NTS) is a network of Amateur Radio operators who move information during disasters and other emergencies. General messages offering well wishes also move through the NTS to help test the system and to help Amateur Radio operators build traffic handling skills. While the NTS is primarily set up to serve the United States and Canada, it is possible to move traffic internationally through the NTS through various local, regional, area, and international network connections.

- **NTS 2.0 : https://nts2.arrl.org**
- **NTS Manual : https://www.arrl.org/nts-manual**
- **NTS Methods and Practices Guidelines Table of Contents : https://www.arrl.org/table-of-contents-nts-methods-and-practices-guidelines**
- **Handling Instructions : https://nts2.arrl.org/hx-handling-instructions**
- **Numbered Texts : https://nts2.arrl.org/numbered-texts**
- **Form Encoding Rules for Form : https://nts2.arrl.org/form-encoding-rules-for-forms**

# Another FREE Clubhouse Resource Available To All Club Members

**Training May Be Required : See Jon Pearce, WB2MNF For Details**

**Frank Van Turner, K3JM**
**Ex. W2KE, 3JM**

**Club Co-Founder**

**President 1959**

**Club Charter Member**

**January 18, 1902 - February 1, 1977**

# Zenith IF Transformer Can Restoration - Part One

**By Chris Prioli AD2CS - chris@ad2cs.com - www.ad2cs.com**

Figure 1 : IF Can Components

As anyone who is the least bit familiar with antique radios will well know, these radios use intermediate frequency transformers as magnetic coupling devices between the various stages of the radio. Depending upon the manufacturer and the particular radio design, these transformers, which are typically enclosed in square metal enclosures known colloquially as ***"cans"***, may have, in addition to their magnetic devices, capacitors of differing designs. In most cases, there will at least be a capacitor in shunt across each winding. There may be additional coupling (or blocking) capacitors included, again depending upon the specific circuit design needs. In many cases, the cans will have adjustment screws for the capacitors, which are often of the ***"trimmer"*** type. Zenith, however, took a different approach with their radios that were produced in the middle 1950's.

A typical Zenith IF can of that vintage will have two windings positioned along a central tube, inside of which the adjustment ***"slugs"*** for the windings will reside. Out of design necessity, there will be an ***"upper"*** and a ***"lower"*** winding **(Figure 1)**. Each winding will have its own slug. Normally, these slugs will be threaded on their exterior surfaces, so as to be able to move vertically inside the central tube as they are turned or "tuned". Tuning the slugs is accomplished by use of a hexagonal alignment tool, with access to the lower slug being gained by passing the tool completely through the upper slug and engaging its hexagonal tip inside the lower slug. The hexagonal tip of the tool is dimensionally wider than its supporting shaft, which is then able to rotate freely inside the upper slug while the lower slug is being adjusted. In these cans, the capacitor (s) are ***not*** adjustable.

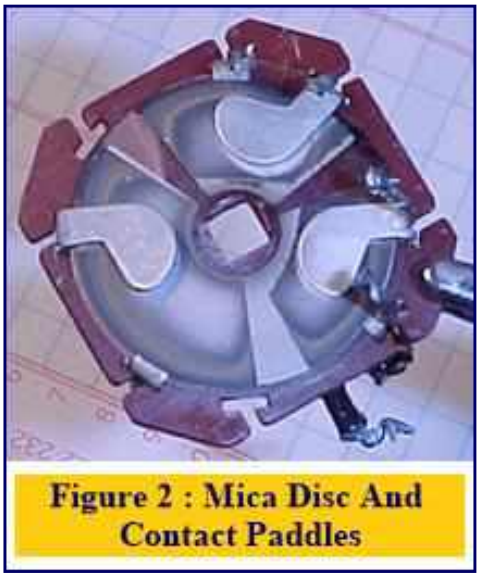


Figure 2 : Mica Disc And Contact Paddles

The capacitor(s) are comprised of paddle-shaped contact pads at the ends of the various transformer terminal pins. Depending upon the specific configuration, each ***"paddle"*** will be positioned either directly under or directly over a mica disc, which prevents paddle-to-paddle direct contact and thus preventing short-circuits between the can terminals. The mica disc is the secret to the capacitors inside these cans. Again depending upon the specific configuration of the can, there will be some silver compound applied to the disc, on both surfaces, in various patterns. The combination of the silver coating and the mica disc form a series of silver-mica capacitors in conjunction with the terminal ***"paddles"*** that are in direct contact with the silver patches on the disc **(Figure 2)**.

As time goes by, these capacitors become affected by a condition known as ***"silver-mica disease"*** or ***"SMD".*** This condition causes a migration of the silver across the disc, together with carbon traces that form, and end up causing short-circuits both between adjacent silver patches and also over the edges of the disc, effectively short-circuiting the disc from surface to surface. According to Google, ***"Silver mica disease is a degradation issue in some vintage radios where the silver on the mica capacitors inside IF (intermediate frequency) cans corrodes and migrates, especially in humid conditions. This "creeping" of silver causes symptoms like static, noise, and poor radio performance, and it can be difficult and time-consuming to repair by replacing the affected capacitors. It is not a medical condition affecting humans but an electronic component failure."***

*Zenith IF Transformer Can Restoration - Continued on page 52*

Silver mica disease can and will cause uncontrollable static, and can be especially annoying when it occurs on bands that are normally static-free, such as the broadcast FM band. On the disc pictured in **Figure 3**, which is from a Zenith 95-1102 third AM IF can from a circa 1954 Zenith 7H04Z2 chassis, the silver-mica disease is clearly visible. This particular can includes a total of three capacitors, as shown in the can schematic in **Figure 4**. Looking at the **Figure 3** disc illustration, the two smaller silver regions, which are heavy with carbon and clearly exhibit migration between the silver patches along the disc edge and center hole, form two 120pF capacitors. The single larger silver patch, between the four o'clock and eight o'clock positions, forms a 180pF capacitor.

**Figure 3 : Mica Disc With SMD Visible**

In the Zenith 95-1102 IF can schematic at **Figure 4**, note the locations of the two 120pF capacitors, that of the 180pF capacitor, and the relative difference between the inductances of the two windings, although the DC resistance of each winding is specified as being the same at 19 ohms each. The small numbers near each lead are the can terminal numbers. Zenith IF cans follow a standard terminal numbering scheme in which, starting at the reference ***"arrow" witness mark*** at one corner of the can, the terminal numbers increment around the can in a clockwise direction when viewed from underneath. It is important to note that each can has eight terminal positions, though not all eight of them may be populated in a given can. The terminal numbers are referenced by the terminal position on the can rather than by the actual terminal count. That is why the can schematic shown has no terminal 2 or terminal 5 - those positions are not populated.

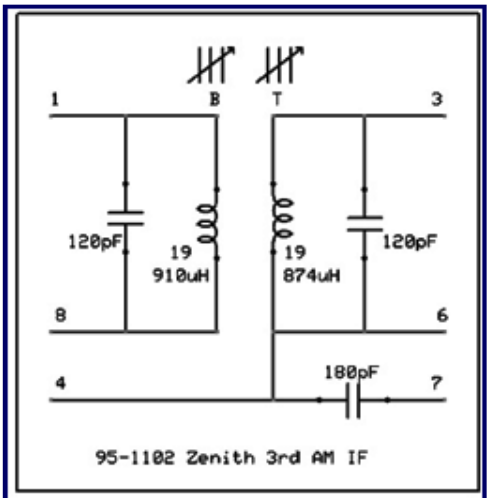



**Figure 4 : 95-1102 IF Can Schematic**

So… if silver-mica disease is such a problem, what can be done about it? There are a couple of accepted strategies for remedying this condition during a radio repair, one of which is much better as a long-term fix than is the other.

Refer to the disc illustrated at **Figure 5**. This is the same disc as in **Figure 3** after a thorough cleaning and careful re-installation into the base of the can, properly positioned between the contact ***"paddles"*** from the terminals. There are a few important points to be noted from this illustration. The first is that the disc ***must*** be installed in its original position and orientation if it is going to function properly. There are a few things that will help with this installation. Note the tab on the disc periphery at about the ten o'clock position, and also note that you can just see the arrow witness mark beneath that tab. Next, note that each of the two smaller silver patches is positioned between an upper and lower ***"paddle"*** contact. Because we are looking at the upper surface of the can base, the terminal numbering will go counter-clockwise, starting at the arrow witness mark. Thus, we have a 120pF capacitor between the contact paddles from terminals 1 and 8, on either side of the witness mark. This agrees with the **Figure 4** schematic, and this capacitor is shunted across the transformer primary winding, which is in this case the lower winding in the can.

**Figure 5 : Cleaned And Installed Mica Disc**

*Zenith IF Transformer Can Restoration - Continued on page 53*

*Zenith IF Transformer Can Restoration - Continued from page 52*

Next, we have another 120pF capacitor formed by the second small silver patch, and positioned between the upper and lower contact paddles at terminals 6 and 7, again in agreement with the schematic at **Figure 4**. This capacitor is also in shunt with a winding, in this case the upper or secondary winding. Finally, we have the 180pF capacitor formed by the large silver patch and the upper and lower contact paddles at terminals 3 and 4, once again in agreement with the **Figure 4** schematic. What is not visible or evident in this illustration is something that can be inferred from the schematic - that terminals 4 and 6 are connected. This is accomplished by the size and extent of the silver patch on the underside of the mica disc. Whereas the upper surface of the mica disc has three silver patches, the lower surface has only two such patches, with one of them occupying a full two-thirds of the disc. This permits that patch to bridge the gap from terminal 4 around to terminal 6, effectively connecting them to each other.

OK - so we talked about the physical placement of the disc, but we did not talk about the most delicate parts of this job. The task, needless to say, starts with removal of the can from the chassis. A ***Sharpie®*** marker can be used to place index marks on the side of the can and on the chassis, adjacent to the mark on the can. This provides for re-installation of the can in the same relative position in the chassis, which is critically important. Take several crystal-clear photographs of the can connections under the chassis, from multiple angles. Verify that the photos clearly show all of the connections to and from the can, including where the opposite end of each connected component and/or wire is routed and attached. Then, carefully de-solder and disconnect each of the connected components and wires. Using a nut driver that properly fits the securing nut, remove that nut from the stud that extends out of the center of the base of the can, and then lift off the bridge that is under the nut. Set them aside for later re-installation.

Again using the ***Sharpie®*** marker, draw an arrow along the corner ridge of the can in alignment with the arrow witness mark between terminals 1 and 8, at one corner of the can. This will aid in re-assembling the can later. Before going any further, it is extremely important that ***all*** solder is removed from each of the can terminals, leaving the terminal surfaces - both of them - clean and smooth. This will permit the terminals to slide out of their slots in the can base block as the can is dis-assembled. Note that occasionally, a terminal will be cemented in place and will therefore not be readily removable. This is usually the case when that terminal does not have a contact paddle formed on the end of the terminal. More about these buggers later - just be aware of them right now.

Using a pair of duckbill pliers - it is best if the pliers ***do not*** have ridges on the inside of the jaws - carefully work each terminal so that it is straight and true, with no bends or twists. This too is necessary so as to facilitate removal of the terminals from their slots in the can base block.

Using a clean sheet of paper for each can that you restore, note the can part number and then draw a diagram of the underside of the can, always positioning the can so that the arrow witness mark is at the upper left-hand corner. This will then create a standard notation form for the can diagrams that you draw, with the terminal 1 position along the upper surface at the left end, number 2 along the upper surface at the right end, number 3 along the right edge at the upper end, and number 4 along the right edge at the lower end. Terminal number 5 will be on the lower edge at the right end, number 6 on the lower edge at the left end, number 7 on the left edge at the lower end, and finally number 8 on the left edge at the top end. Be sure to note which terminal positions are populated and which are not. This will make it easier to re-assemble the can later. The reason for the clean sheet of paper for each can is so that any and all information for any given can will all be together, and nothing else will be there to confuse things. If so desired, you can easily consolidate the data later for a more permanent record, but for now, while restoring the cans, this is the best way to work things for clarity and accuracy.

*Zenith IF Transformer Can Restoration - Continued on page 54*

*Zenith IF Transformer Can Restoration - Continued from page 53*

Now it is time for some measurements that we will make to validate things for later on. On your note sheet for the can, draw a table similar to the one shown in **Figure 6**. Next, make resistance measurements using your multimeter between the various terminal pairs, recording the measured values in the appropriate blocks. For example, when measuring between terminals 1 and 2, enter the value in either the 1 column and the 2 row, or vice-versa. Either way is OK. Do this for each and every terminal pair. Remember, that for some terminal pairs, the result will be ***"open"*** or ***"infinity",*** indicated on some DMM's as ***"0L"*** or ***"overload",*** while for others it may be ***"shorted",*** usually indicated by a 0.000Ω (or nearly so) reading. Take for example the 95-1102 IF can discussed above. If the resistance measurement is made between terminals 4 and 6, the result should be at or near zero ohms. If the measurement is between terminals 1 and 8, the result should be somewhere low, in the area of twenty ohms. The same result would be expected between terminals 3 and 6. Note too that the DC resistance between terminals 6 and 7 should be infinite ***after a short period of low resistance being indicated***. This is because the 180pF capacitor is all that is connected between these two terminals. Once the capacitor is fully charged, current flow ceases and the resistance reading goes to infinite as a result. The terminal 1 & 8 pair and the terminal 3 & 6 pair will also exhibit a short(er) period of very low resistance, but it may not be noticed due to the brevity of the period and the basically low resistance of the windings involved. The short-term low-resistance readings in these terminal pairs is, of course, due to the presence of the 120pF capacitor in shunt across each of the connected windings.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| 1 | X | | | | | | | |
| 2 | | X | | | | | | |
| 3 | | | X | | | | | |
| 4 | | | | X | | | | |
| 5 | | | | | X | | | |
| 6 | | | | | | X | | |
| 7 | | | | | | | X | |
| 8 | | | | | | | | X |

**Figure 6 : Resistance Record Table**

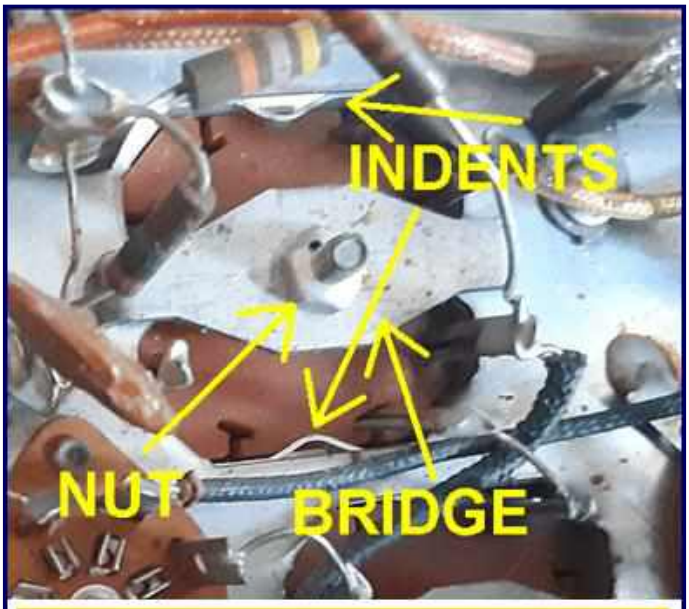



**Figure 7 : IF Can Bottom View**

Recording these resistance measurements will prepare you as to what to expect regarding internal connections when the can is finally opened up and disassembled. As the can is disassembled, it will become readily apparent which terminal is connected to which winding. The capacitor connections will not be quite so evident at the outset, as the disc will be very difficult to read clearly before it is cleaned.

The connections to the windings are comprised of ***extremely*** light-gauge wire, which is very easily broken off the terminals with anything except the most delicate of handling methods and procedures. ***Be warned!*** While there is usually sufficient excess wire length to permit ***one*** re-connection process, that is all that there is. It is best to avoid breaking the wires at all rather than to have to go through the re-connection process. OK - we have skirted the issue long enough. Now it is time to open up the can and to get down to what lies inside.

*Zenith IF Transformer Can Restoration - Continued on page 55*

*Zenith IF Transformer Can Restoration - Continued from page 54*

**Figure 8 : Zenith IF Can Internals**

Refer to the photo at **Figure 7** and take a good look at the underside of the can again. This photo shows the installed bridge and retaining nut. Pay special attention to the edge of the can enclosure at the center of each edge of the can, where you will see an indent bent into the edge of the can enclosure material. Note that only two of the indents are visible in the photo. The other two are mostly hidden underneath the bridge. These four indents retain the enclosure onto the can base block and ensure that the central tube remains in place in the opening at the top of the can.

Using the duckbill pliers again, carefully straighten each of these indents, re-aligning them with the enclosure side surface. Straightening the indents usually takes no more than a simple squeeze of the pliers on the indent, flattening it back into its original condition before the indent was made. Now… before going any deeper into this, ***carefully review the can diagram that you made, including the populated terminal positions, and make sure that the arrow witness mark on the can base has an aligned arrow marked on the can corner***.

Using the nut driver again, remove the nut that secures the base block onto the center stud. Set the nut aside safely for re-installation upon re-assembly of the can later on. Now, gently slide the can enclosure off the internals, while holding securely onto one of the terminals. Set the can enclosure aside as you did the two nuts and the bridge. Place the removed internals carefully onto another clean white sheet of paper, and then take several clean and clearly focused photographs of the internals, making sure that the locations and positions of the contact paddles are shown in the photographs. The clean white paper provides a clean background for the photographs. Having already removed the nut from the stud, you should be able to gently separate the base block from the round upper base disc that sandwiches the mica disc and the contact paddles. Separate the base block and the upper base disc by only about an eighth of an inch or so at this point. Doing so will make it easier to photographically record the positions and orientations of the contact paddles **(Figure 8).** It should now be evident which contact paddles are between the base block and the mica disc, and also which contact paddles are between the mica disc and the upper base disc. It should also be evident at this point that the tab on the periphery of the mica disc is aligned to the arrow witness mark on the base block. The arrow witness mark is repeated on the upper surface of the base block. A careful look at the **Figure 8** photograph will help you to recognize the mica disc as it sits between the contact paddles.

| | Wires yes/no | Wires Winding top/bot | Paddle yes/no | Paddle Locus top/bot | Paddle Aligned yes/no | Notes |
|---|---|---|---|---|---|---|
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |
| 6 | | | | | | |
| 7 | | | | | | |
| 8 | | | | | | |

**Figure 9 : Terminal Configuration Table**

Now it is time to go back to the sheet of paper upon which we are making our notes about the can. Draw another table, this time similar to that shown in **Figure 9**. Examine the can internals, entering the appropriate data for each terminal into its designated cell in the table. For example, lets suppose that for a given can, terminal 1 has a wire attached and that wire connects to the bottom winding, there is a paddle at terminal 1 which is above the mica disc, and there is a paddle from terminal 8 positioned directly beneath the terminal 1 paddle. With that set of conditions, the terminal 1 row of the terminal configuration table would read, from left to right, ***"yes" "bot" "yes" "top" "yes"*** and possibly, the row may be closed out with some notes that were deemed important.

*Zenith IF Transformer Can Restoration - Continued on page 56*

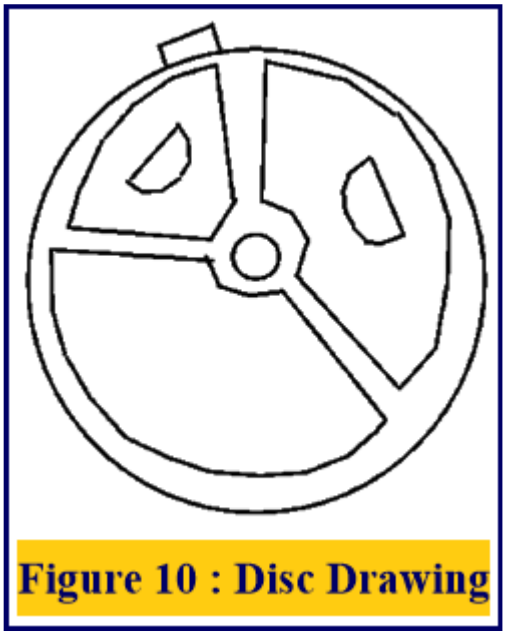


**Figure 10 : Disc Drawing**

If we are going to use directional position-indicating terms, we must have a standard as to the specific meaning of each term. The generally-accepted practice is to identify the various parts and pieces with respect to their position and orientation in the installed device. Therefore, when we indicate that a winding or a contact paddle is the ***"top"*** one, it means that the part is in the top or upper position or location in the can when it is viewed with respect to its normal upright position in the chassis. This is important to remember, mostly because of the fact that when we work inside the IF can, we are actually working from the underside of the can, where ***"down"*** has suddenly become ***"up".*** Although it may seem confusing at first, we generally follow this procedure because it is the scheme utilized by the schematic and service literature authors, and you should remember that ***they*** would be looking at the chassis with the cans installed and upright.

We can now separate the base block from the upper base disc, which will then allow the removal of the mica disc from between these elements. Because only the upper surface of the mica disc can be readily seen at this point, we will make a careful sketch of that surface on your note sheet for this can. Begin by drawing a circle about an inch in diameter, and then add a ***"tab"*** at about the eleven o'clock position on the edge of the circle. Now, hold the can internals, terminals down in one hand with the arrow witness mark at the upper left corner. Looking under the upper base disc as necessary to fully visualize the silver patch pattern on the disc, transfer what you see on the disc to the drawn circle on your note sheet. While it does not need to be one hundred percent accurate, the drawing does need to adequately represent on paper what exists in silver on the disc. For example, if a silver patch on the disc extends from twelve o'clock around to about four o'clock, just draw a similar pattern in the circle that represents the disc, as shown in **Figure 10**. To finish up the disc sketch, add in contact paddle outlines at the proper locations. Doing all of this will allow for the accurate re-assembly of the can after cleaning. Cleaning of the disc will, if done correctly, remove almost all indications of where the contact paddles had been in place against the silver patches on the disc, so this drawing is your best means of properly identifying the correct assembly positions. It can be as crude as you would like, so long as it represents the patch and contact positions fairly accurately.

Removal of the mica disc from the can internals involves first sliding the terminals out of their respective slots in the base block. At the same time, slip the base block off the center stud, and then simply lift the mica disc off the upper base disc, taking special care ***not*** to bend the disc sharply.

This is the point in the process where a decision must be made as to whether to repair or replace the capacitor system in the can at hand. Earlier I said that there were two generally-accepted methods of dealing with silver-mica disease in these IF cans. Those two methods are to either **a)** repair the disc by cleaning it and then reinstalling it into the can, or **b)** discarding the mica disc and installing discrete silver-mica capacitors of appropriate values in place of the disc. That is the decision that must be made.

If the mica disc or its silver patches are fractured, then there is not much choice in the matter, and replacement is the better way to proceed. Also, if the disc fails to clean up adequately, then replacement is also advised. A third factor would be the longevity factor. The discrete capacitor option is a more permanent fix than is the cleaning process. My usual approach is to replace the disc with discrete silver-mica capacitors, but I will describe the clean-up process first so that the reader can make an informed decision on this matter.

## End of Part 1. Part 2 in the February 2026 CrossTalk

# January 2026 Contest Calendar - WA7BNM Contest Calendar : www.contestcalendar.com

| January 2026 | |
|---|---|
| AGB New Year Snowball Contest | 0000Z-0100Z, Jan 1 |
| Walk for the Bacon QRP Contest | 0000Z-0100Z, Jan 1 and 0200Z-0300Z, Jan 2 |
| CWops Test (CWT) | 0300Z-0400Z, Jan 1 |
| CWops Test (CWT) | 0700Z-0800Z, Jan 1 |
| SARTG New Year RTTY Contest | 0800Z-1100Z, Jan 1 |
| AGCW Happy New Year Contest | 0900Z-1200Z, Jan 1 |
| AGCW VHF/UHF Contest | 1400Z-1700Z, Jan 1 (144) and 1700Z-1800Z, Jan 1 (432) |
| IRTS 80m Counties Contest | 1700Z-1800Z, Jan 1 |
| NRAU 10m Activity Contest | 1800Z-1900Z, Jan 1 (CW) and 1900Z-2000Z, Jan 1 (SSB) and 2000Z-2100Z, Jan 1 (FM) and 2100Z-2200Z, Jan 1 (Dig) |
| SKCC Sprint Europe | 2000Z-2200Z, Jan 1 |
| NCCC FT4 Sprint | 0100Z-0130Z, Jan 2 |
| Weekly RTTY Test | 0145Z-0215Z, Jan 2 |
| QRP Fox Hunt | 0200Z-0330Z, Jan 2 |
| NCCC Sprint | 0230Z-0300Z, Jan 2 |
| K1USN Slow Speed Test | 2000Z-2100Z, Jan 2 |
| PODXS 070 Club PSKFest | 0000Z-2400Z, Jan 3 |
| Marconi Club ARI Loano QSO Party Day | 0700Z-2100Z, Jan 3 |
| WW PMC Contest | 1200Z, Jan 3 to 1200Z, Jan 4 |
| RSGB AFS Contest, CW | 1300Z-1700Z, Jan 3 |
| ARRL RTTY Roundup | 1800Z, Jan 3 to 2400Z, Jan 4 |
| ARRL Kids Day | 1800Z-2359Z, Jan 3 |
| EUCW 160m Contest | 2000Z-2300Z, Jan 3 and 0400Z-0700Z, Jan 4 |
| FOC Old School Classic 1960s QSO Party | 1200Z, Jan 4 to 1200Z, Jan 5 |
| K1USN Slow Speed Test | 0000Z-0100Z, Jan 5 |
| ICWC Medium Speed Test | 1300Z-1400Z, Jan 5 |
| OK1WC Memorial (MWC) | 1630Z-1729Z, Jan 5 |
| ICWC Medium Speed Test | 1900Z-2000Z, Jan 5 |
| ARS Spartan Sprint | 0100Z-0300Z, Jan 6 |
| Worldwide Sideband Activity Contest | 0100Z-0159Z, Jan 6 |
| ICWC Medium Speed Test | 0300Z-0400Z, Jan 6 |
| QRP Fox Hunt | 0200Z-0330Z, Jan 7 |
| Phone Weekly Test | 0230Z-0300Z, Jan 7 |
| A1Club AWT | 1145Z-1300Z, Jan 7 |
| CWops Test (CWT) | 1300Z-1400Z, Jan 7 |
| VHF-UHF FT8 Activity Contest | 1700Z-2100Z, Jan 7 |
| Mini-Test 40 | 1700Z-1759Z, Jan 7 |
| Mini-Test 80 | 1800Z-1859Z, Jan 7 |
| CWops Test (CWT) | 1900Z-2000Z, Jan 7 |
| UKEICC 80m Contest | 2000Z-2100Z, Jan 7 |
| CWops Test (CWT) | 0300Z-0400Z, Jan 8 |
| CWops Test (CWT) | 0700Z-0800Z, Jan 8 |
| NCCC FT4 Sprint | 0100Z-0130Z, Jan 9 |
| Weekly RTTY Test | 0145Z-0215Z, Jan 9 |
| QRP Fox Hunt | 0200Z-0330Z, Jan 9 |
| NCCC Sprint | 0230Z-0300Z, Jan 9 |
| K1USN Slow Speed Test | 2000Z-2100Z, Jan 9 |
| YB DX Contest | 0000Z-2359Z, Jan 10 |
| Old New Year Contest | 0500Z-0859Z, Jan 10 |
| SKCC Weekend Sprintathon | 1200Z, Jan 10 to 2400Z, Jan 11 |
| UBA PSK63 Prefix Contest | 1200Z, Jan 10 to 1200Z, Jan 11 |
| North American QSO Party, CW | 1800Z, Jan 10 to 0559Z, Jan 11 |
| NRAU-Baltic Contest, SSB | 0600Z-0800Z, Jan 11 |
| NRAU-Baltic Contest, CW | 0830Z-1030Z, Jan 11 |
| DARC 10-Meter Contest | 0900Z-1059Z, Jan 11 |
| RSGB AFS Contest, Data | 1300Z-1700Z, Jan 11 |
| K1USN Slow Speed Test | 0000Z-0100Z, Jan 12 |
| 4 States QRP Group Second Sunday Sprint | 0100Z-0300Z, Jan 12 |
| ICWC Medium Speed Test | 1300Z-1400Z, Jan 12 |
| OK1WC Memorial (MWC) | 1630Z-1729Z, Jan 12 |
| ICWC Medium Speed Test | 1900Z-2000Z, Jan 12 |
| Worldwide Sideband Activity Contest | 0100Z-0159Z, Jan 13 |
| ICWC Medium Speed Test | 0300Z-0400Z, Jan 13 |
| DARC RTTY Sprint | 1800Z-1929Z, Jan 13 |
| QRP Fox Hunt | 0200Z-0330Z, Jan 14 |
| Phone Weekly Test | 0230Z-0300Z, Jan 14 |
| A1Club AWT | 1145Z-1300Z, Jan 14 |
| CWops Test (CWT) | 1300Z-1400Z, Jan 14 |
| VHF-UHF FT8 Activity Contest | 1700Z-2100Z, Jan 14 |
| Mini-Test 40 | 1700Z-1759Z, Jan 14 |
| Mini-Test 80 | 1800Z-1859Z, Jan 14 |

*January 2026 Contest Calendar - Continued on page 58*

*January 2026 Contest Calendar - Continued from page 57*

| | |
|---|---|
| CWops Test (CWT) | 1900Z-2000Z, Jan 14 |
| AWA Linc Cundall Memorial CW Contest | 2300Z, Jan 14 to 2300Z, Jan 15 and 2300Z, Jan 17 to 2300Z, Jan 18 |
| Walk for the Bacon QRP Contest | 0000Z-0100Z, Jan 15 and 0200Z-0300Z, Jan 16 |
| CWops Test (CWT) | 0300Z-0400Z, Jan 15 |
| CWops Test (CWT) | 0700Z-0800Z, Jan 15 |
| NTC QSO Party | 1900Z-2000Z, Jan 15 |
| NCCC FT4 Sprint | 0100Z-0130Z, Jan 16 |
| Weekly RTTY Test | 0145Z-0215Z, Jan 16 |
| QRP Fox Hunt | 0200Z-0330Z, Jan 16 |
| NCCC Sprint | 0230Z-0300Z, Jan 16 |
| K1USN Slow Speed Test | 2000Z-2100Z, Jan 16 |
| Hungarian DX Contest | 1200Z, Jan 17 to 1159Z, Jan 18 |
| PRO Digi Contest | 1200Z, Jan 17 to 1159Z, Jan 18 |
| RSGB AFS Contest, SSB | 1300Z-1700Z, Jan 17 |
| North American QSO Party, SSB | 1800Z, Jan 17 to 0559Z, Jan 18 |
| NA Collegiate Championship, SSB | 1800Z, Jan 17 to 0559Z, Jan 18 |
| ARRL January VHF Contest | 1900Z, Jan 17 to 0359Z, Jan 19 |
| Feld Hell Sprint | 2000Z, Jan 17 to 0559Z, Jan 18 |
| Run for the Bacon QRP Contest | 2300Z, Jan 18 to 0100Z, Jan 19 |
| K1USN Slow Speed Test | 0000Z-0100Z, Jan 19 |
| ICWC Medium Speed Test | 1300Z-1400Z, Jan 19 |
| OK1WC Memorial (MWC) | 1630Z-1729Z, Jan 19 |
| ICWC Medium Speed Test | 1900Z-2000Z, Jan 19 |
| RSGB FT4 Contest | 2000Z-2200Z, Jan 19 |
| Worldwide Sideband Activity Contest | 0100Z-0159Z, Jan 20 |
| ICWC Medium Speed Test | 0300Z-0400Z, Jan 20 |
| QRP Fox Hunt | 0200Z-0330Z, Jan 21 |
| Phone Weekly Test | 0230Z-0300Z, Jan 21 |
| A1Club AWT | 1145Z-1300Z, Jan 21 |
| CWops Test (CWT) | 1300Z-1400Z, Jan 21 |
| VHF-UHF FT8 Activity Contest | 1700Z-2100Z, Jan 21 |
| Mini-Test 40 | 1700Z-1759Z, Jan 21 |
| Mini-Test 80 | 1800Z-1859Z, Jan 21 |
| CWops Test (CWT) | 1900Z-2000Z, Jan 21 |
| NAQCC CW Sprint | 0130Z-0330Z, Jan 22 |
| CWops Test (CWT) | 0300Z-0400Z, Jan 22 |
| CWops Test (CWT) | 0700Z-0800Z, Jan 22 |
| NCCC FT4 Sprint | 0100Z-0130Z, Jan 23 |
| Weekly RTTY Test | 0145Z-0215Z, Jan 23 |
| QRP Fox Hunt | 0200Z-0330Z, Jan 23 |
| NCCC Sprint | 0230Z-0300Z, Jan 23 |
| K1USN Slow Speed Test | 2000Z-2100Z, Jan 23 |
| CQ 160-Meter Contest, CW | 2200Z, Jan 23 to 2200Z, Jan 25 |
| REF Contest, CW | 0600Z, Jan 24 to 1800Z, Jan 25 |
| BARTG RTTY Sprint | 1200Z, Jan 24 to 1200Z, Jan 25 |
| Winter Field Day | 1600Z, Jan 24 to 2159Z, Jan 25 |
| Australia Day Contest | 2200Z, Jan 25 to 1000Z, Jan 26 |
| K1USN Slow Speed Test | 0000Z-0100Z, Jan 26 |
| QCX Challenge | 1300Z-1400Z, Jan 26 |
| ICWC Medium Speed Test | 1300Z-1400Z, Jan 26 |
| OK1WC Memorial (MWC) | 1630Z-1729Z, Jan 26 |
| QCX Challenge | 1900Z-2000Z, Jan 26 |
| ICWC Medium Speed Test | 1900Z-2000Z, Jan 26 |
| Worldwide Sideband Activity Contest | 0100Z-0159Z, Jan 27 |
| QCX Challenge | 0300Z-0400Z, Jan 27 |
| ICWC Medium Speed Test | 0300Z-0400Z, Jan 27 |
| SKCC Sprint | 0000Z-0200Z, Jan 28 |
| QRP Fox Hunt | 0200Z-0330Z, Jan 28 |
| Phone Weekly Test | 0230Z-0300Z, Jan 28 |
| A1Club AWT | 1145Z-1300Z, Jan 28 |
| CWops Test (CWT) | 1300Z-1400Z, Jan 28 |
| Mini-Test 40 | 1700Z-1759Z, Jan 28 |
| Mini-Test 80 | 1800Z-1859Z, Jan 28 |
| CWops Test (CWT) | 1900Z-2000Z, Jan 28 |
| UKEICC 80m Contest | 2000Z-2100Z, Jan 28 |
| NAQCC CW Sprint | 0130Z-0330Z, Jan 29 |
| CWops Test (CWT) | 0300Z-0400Z, Jan 29 |
| CWops Test (CWT) | 0700Z-0800Z, Jan 29 |
| NCCC FT4 Sprint | 0100Z-0130Z, Jan 30 |
| Weekly RTTY Test | 0145Z-0215Z, Jan 30 |
| QRP Fox Hunt | 0200Z-0330Z, Jan 30 |
| NCCC Sprint | 0230Z-0300Z, Jan 30 |
| K1USN Slow Speed Test | 2000Z-2100Z, Jan 30 |
| UBA DX Contest, SSB | 1300Z, Jan 31 to 1300Z, Feb 1 |

# Cherry Valley Model Railroad Club

## Holiday Open House!

Grace Church • 7 East Maple Ave.
Merchantville, NJ 08109

**Sat, Oct 18 & Nov. 15**
**Sat. & Sun, December 6 & 7.**
**Sat. & Sun, January 3 & 4, 10 & 11**
**Hours: 12-3pm**

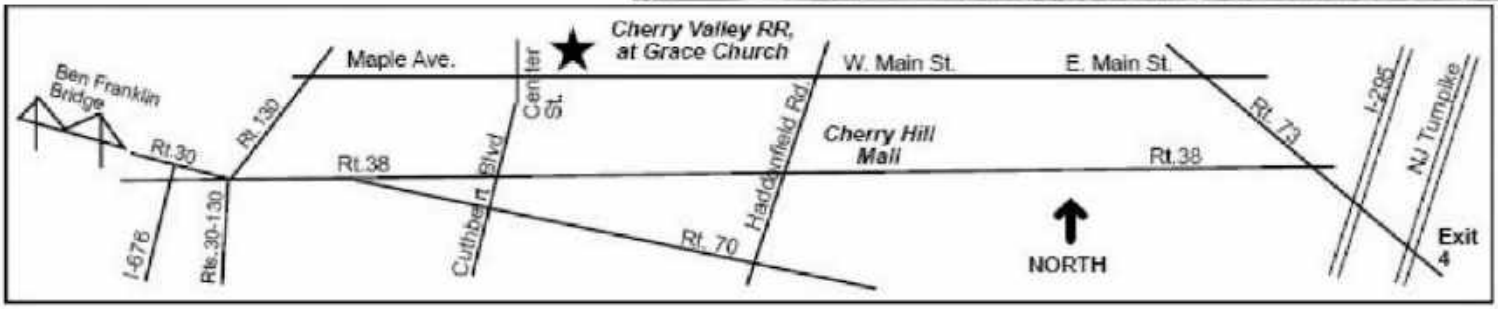
*Please note the club layout is not wheelchair accessble*

## Free admission! Bring the Family.

For information, please contact:
Doug Shultz 609-923-6161

FOLLOW US ON facebook

Follow us on Facebook:
**Cherry Valley Model Railroad**
for photos, videos, events & news!



## The W2MMD Repeaters

**2 Meter Repeater**
Output : 147.180 MHz
Input : 147.780 MHz
Offset : +600 kHz - PL : 131.8 Hz
**(Conventional FM plus C4FM Capability)**
**EchoLink : W2MMD-R**

**70 cm Repeater**
Output : 442.100 MHz
Input : 447.100 MHz
Offset : +5 MHz - PL : 131.8 Hz
**(Conventional FM plus C4FM Capability)**

The above repeaters are both
located in Pitman, NJ
GPS : 39.728481°, -75.131088°

**1.25 Meter Repeater**
Output : 224.660 MHz
Input : 223.060 MHz
Offset : -1.6 MHz - PL : 131.8 Hz
Location : Sewell, NJ
GPS : 39.746738°, -75.077094°

**SKYWARN™ Net**
Sunday @ 1930 : 147.180 MHz Repeater

**Gloucester County ARES Net**
Sunday @ 2000 : 147.180 MHz Repeater

**GCARC TechNet ZOOM Forum**
Available Every Monday @ 1930 Hours
**Join ZOOM Meeting Link :**
**https://bit.ly/3K8bWwj**

**Tuesday AfterNoon 2M Net @ 1200 Hours**

**Monday & Thursday Night 40M Net**
**1900 Hours**
**7.170 MHz (Plus or Minus 5 or 10 kHz)**

**Thursday 2M Net @ 2000 Hours**

**All 2 Meter Nets Are Also On EchoLink :**
**W2MMD-R**

## Meeting Calendar

***General Membership Meeting***
**Wednesday, January 07, 2026**
**1900 Hours**
**Pfeiffer Community Center**
**Simulcast Live on ZOOM**
**Meeting ID : 982 4039 1944**
**Passcode : 091084**
**Join ZOOM Meeting Link :**
**https://bit.ly/44KPTqc**

***Board of Directors Meeting***
**Wednesday, January 21, 2026**
**1900 Hours**
**W2MMD Clubhouse**

***"Ask not what your Club can do for you, Ask what you can do for your Club"***
***- KA2OSV***

***"There's More To Ham Radio Than You Can Possibly Do!"***
***- K3TS***

## *** Badges ***

**Need a new or replacement badge**
**Contact "*The Badge Man*"**

**Chris Prioli AD2CS**
**chris@ad2cs.com**

**Question Pool Answers : E4E01:A; E4E02:D; E4E03:B; E4E04:D; E4E05:B; E4E06:C; E4E07:B; E4E08:B; E4E09:C; E4E10:D; E4E11:B; E4E12:A; E4E13:C; E4E14:D**